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The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DEPARTMENT OF LABOR
AND INDUSTRIES

FOR THE

Year Ending November 30, 1936



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The Commonwealth of Massachusetts

DEPARTMENT OF LABOR AND INDUSTRIES

OFFICIALS

JAMES T. MORIARTY, BOSTON, COMMISSIONER.

MARY E. MEEHAN, BOSTON, *Assistant Commissioner*.

JOHN L. CAMPOS, FALL RIVER, *Associate Commissioner*.

THOMAS F. CURLEY, BOSTON, *Associate Commissioner*.

RAYMOND V. McNAMARA, HAVERHILL, *Associate Commissioner*.

HEADS OF DIVISIONS AND BRANCHES

Board of Conciliation and Arbitration:

THOMAS F. CURLEY, *Chairman*. JOHN L. CAMPOS. RAYMOND V. McNAMARA.

Division of Industrial Safety: JOHN P. MEADE, *Director*.

JOSEPH MONETTE, *Counsel*.

Division of Minimum Wage: MARY E. MEEHAN, *Acting Director*.

THOMAS F. CURLEY, *Chairman*. JOHN L. CAMPOS. RAYMOND V. McNAMARA.

Division on the Necessaries of Life: RALPH W. ROBERT, *Director*.

Division of Standards: JOHN P. McBRIDE, *Director*.

Division of Statistics: ROSWELL F. PHELPS, *Director*.

JOSEPH KING, *Statistician for Manufacturers*.

LESTER E. ARCHIBALD, *Statistician for Labor*.

Division of Occupational Hygiene: MANFRED BOWDITCH, *Director*.

Unemployment Compensation Commission: M. JOSEPH McCARTIN, *Executive Secretary*. EMIL E. FUCHS, *Chairman*, ROBERT J. WATT, FRANK G. ALLEN.

Division of Public Employment Offices: FRED J. GRAHAM, *Director*.

REPORT OF THE COMMISSIONER OF LABOR AND INDUSTRIES

To the General Court:

The annual report of the Commissioner of Labor and Industries for the year ending November 30, 1936, is herewith submitted. It is the department's seventeenth report and contains the reports of the heads of the eight divisions into which the department is organized, together with detailed tables and charts showing the work accomplished. It includes also a statement of the appropriations and expenditures for this period.

Weekly Payment of Wages. — Particular attention is called to the adjustment of complaints under the weekly payment of wages law. During the year 2,974 complaints of violation of this law were received, and as the result of action taken by the department the amount paid to employees was \$39,868.14. These claims are mostly for small amounts due employees, who cannot afford to lose the wages due or to take civil action to collect them.

Predetermination of Minimum Wage Rates on Public Works. — Before awarding contracts for the construction of public works public officials must submit their projects to the Commissioner of Labor and Industries in order that he may prepare a list of classifications and wage rates to be paid on such projects. An appeal from the rates determined is provided for by statute but it is gratifying to note that of 1,522 projects on which wage rates have been determined only three appeals were made and in only one instance was a reduction made from the rate established.

A more detailed account of this work may be found in the report of the Division of Industrial Safety.

National Youth Administration Project. — A National Youth Administration Project was carried on through the Division of Statistics, giving employment to young persons 18 to 25 years of age. The work of this group proved very satisfactory and through its assistance much valuable work was accomplished.

Discrimination Against Older Wage Earners. — A special investigation was made by the department relative to the prevention of discrimination against certain persons in employment on account of their age. A complete report of this investigation and how it was carried on may be found in the report of the Division of Statistics.

Industrial Chemical Survey. — With the assistance of a small group of technically trained men, whose services were secured through the Works Progress Administration, the department was able to undertake an industrial chemical survey for the purpose of promoting a preventive program on the use of harmful chemical substances in industry. This survey was carried on under the supervision of the Division of Occupational Hygiene.

Appropriations. — The total amount of the several appropriations for the use of the department during the year was \$685,440.20; the expenditures amounted to \$567,470.56, leaving an unexpended balance of \$117,969.64. Total receipts of the department amounted to \$124,630.55. There were collected through the Division of Standards and paid into the treasury of the commonwealth the sum of \$118,420.05. Fees for the examination of painters and the registration of riggers to the amount of \$6,202.50 were also collected and paid into the state treasury through the Division of Industrial Safety.

JAMES T. MORIARTY,
Commissioner of Labor and Industries.

FINANCIAL STATEMENT FOR 1936

INCOME

<i>Division of Industrial Safety</i>			
Fees for registration of painters' rigging and for examination for certification as painters' rigger	\$6,202.50		
Collected in fees and paid into the treasury of the commonwealth			\$6,202.50
<i>Division of Standards</i>			
Collected in fees and paid into the treasury of the commonwealth	\$76,444.05		
Collected in fees and paid into treasuries of the cities, towns and counties of the commonwealth	41,364.00		
Penalties for violations of hawkers and peddlers laws	620.00		
Total receipts of division of standards			\$118,428.05
Total receipts of the department of labor and industries			\$124,630.55

EXPENDITURES

Account	Appropriations and balances forwarded from 1935	Expenditures	Unexpended Balance
<i>Administration</i>			
Commissioner, assistant and associate commissioners, personal services	\$20,500.00	\$20,428.40	\$71.60
Clerical and other assistance, personal services	7,520.00	7,520.00	-
Investigation re: discrimination against older workers, Chapter 33, Resolves of 1935, personal services and expenses	23.92	-	23.92
<i>Division of Industrial Safety</i>			
Inspectional service, personal services and expenses	166,510.00	163,704.03	2,805.97
<i>Division of Statistics</i>			
Statistical service, personal services and expenses	75,209.45	71,869.59	3,339.86
<i>Board of Conciliation and Arbitration</i>			
Personal services	14,000.00	11,415.00	2,585.00
Other expenses	3,003.40	2,619.61	383.79
<i>Division of Standards</i>			
Personal services	32,100.00	31,951.61	148.39
Other expenses	13,251.57	11,748.72	1,502.85
<i>Division on the Necessaries of Life</i>			
Personal services	13,640.00	13,416.66	223.34
Other expenses	1,950.00	1,761.53	188.47
<i>Division of Occupational Hygiene</i>			
Personal services	11,590.00	11,508.22	81.78
Other expenses	6,325.14	5,867.95	457.19
Totals	\$365,623.48	\$353,811.32	\$11,812.16
<i>Massachusetts Unemployment Compensation Commission</i>			
<i>Division of Public Employment Offices (Massachusetts)</i>			
Personal services	\$77,000.00	\$53,677.26	\$23,322.74
Other expenses	15,000.00	14,999.61	.39
Totals	\$92,000.00	\$68,676.87	\$23,323.13
<i>Unemployment Compensation Commission</i>			
State appropriations, personal services and expenses	\$25,366.76	\$20,158.05	\$5,208.71
Federal Grants, personal services and expenses, Feb. 11, 1936-November 30, 1936	202,449.96	124,824.32	77,625.64
Totals	\$227,816.72	\$144,982.37	\$82,834.35
GRAND TOTAL	\$685,440.20	\$567,470.56	\$117,969.64
<i>Recapitulation</i>			
Officials	\$20,500.00	\$20,428.40	\$71.60
Personal services and expenses	345,123.48	333,382.92	11,740.56
Massachusetts Unemployment Compensation Commission	227,816.72	144,982.37	82,834.35
Division of Public Employment offices	92,000.00	68,676.87	23,323.13
GRAND TOTAL	\$685,440.20	\$567,470.56	\$117,969.64

REPORT OF THE DIVISION OF INDUSTRIAL SAFETY

JOHN P. MEADE, *Director*

INSPECTION OF INDUSTRIAL ESTABLISHMENTS

Regular inspection of industrial establishments is the basic policy of this division in its work for the enforcement of labor laws. This system of administration is now well-known in the manufacturing and mercantile plants of the state, and compliance with the statutes in the course of this work is the usual experience. Through this means the protection provided for by statute to employees is maintained. Compliance is secured with laws and regulations for the safeguarding of dangerous machinery. Adequate and suitable lighting is furnished in the work places. Rules and regulations for proper toilet and washing facilities are maintained; ventilation of industrial establishments carried on; pure water provided for drinking purposes and statutes enforced with regard to restricting the hours of employment for women and children.

The inspection work includes within its scope the supervision of building operations and the enforcement of the rules and regulations to maintain safe scaffolding and working platforms for employees in the different types, including structural painting and in the construction, alteration of and addition to public works by the commonwealth, county, town or district.

Checking up on the wage rates and classifications of employment fixed by the Commissioner of Labor and Industries under the authority of the statute is an integral part of this service.

Cause of injury is studied in the investigation of accidents and diseases of occupation, and means for the prevention of similar occurrences are based on this experience and followed in the work of accident prevention. Special reports and problems affecting employees in industry are made to the Commissioner of Labor and Industries for his attention and direction.

SUMMARY OF ACTIVITIES

During the year there was a total of 54,138 inspections and 12,057 reinspections. The following is a summary of activities:

<i>Inspections:</i>	Mercantile . . .	29,398	<i>Reinspections:</i>	. . . . .	12,057
	Mechanical . . .	9,228			
	Manufacturing . .	5,111	<i>Visits:</i>	Complaints . . .	3,165
	Building operations	6,852		Accidents . . .	1,055
	Painting operations	2,817		Diseases . . .	366
	Road construction .	732		Homework . . .	27
				WPA projects . .	1,345
		54,138		Building permits .	726
					6,684
<i>Total inspections and visits</i>	. . . . .				72,879

Employees in Industrial Establishments

	Mercantile	Mechanical	Manufacturing	All establishments
Number inspected	29,398	9,228	5,111	43,737
Number of employees . . .	164,452	129,252	478,071	771,775
<i>Males</i>				
14 to 16 years	443	75	117	635
16 to 21 years	8,256	4,356	20,538	33,150
Over 21 years	93,138	92,588	286,787	472,513
	101,837	97,019	307,442	506,298
<i>Females</i>				
14 to 16 years	136	17	33	186
16 to 21 years	7,713	4,799	28,476	40,988
Over 21 years	54,766	27,417	142,120	224,303
	62,615	32,233	170,629	265,477

Orders Issued

Labor: Employment of minors, 142; posting time notices, 7,101; minors employed in prohibited trades and on dangerous machinery, 59; public exhibition of children, 13; procuring and returning certificates, 3,302. Total, 10,617.

Health and Sanitation: Ventilation, gas fumes and dust removal, 294; meal hours for women, 20; provide pure drinking water, 47; provide seats for women, 41; core rooms, 6; lockers, 30; Sunday work and one day's rest in seven, 628; lighting and injury to eyes, 344; toilet and washing facilities, 2,440; medical chest and medical room, 1,090; common drinking cup and common towel, 118; casters on boxes, 75 lbs. or over, 1. Total, 5,059.

Safety: Communication with the engine room, 16; guarding dangerous machinery, 2,405; unguarded openings, 61; free egress, 130. Total, 2,612.

Miscellaneous: Weavers' specifications, 137; homework licenses, 32; pay weekly, 27; provide heat, 1; provide suitable containers for benzol, 1. Total, 198.

Building Operations: Building, 1,266; painting, 674. Total, 1,940.

Public Works: Predetermined rate, 44; posting rate, 57. Total, 101.

Total orders issued, including 9,607 verbal orders which were complied with at the time of issuance, 20,527; total number of orders complied with, 20,592. Number outstanding November 30, 1936, 1,166.

Complaints Received

Women and Minors: Overtime employment, 606.

Minors: Employed under 14 years of age, 12; employed without certificate, 21; employed in prohibited trades and on dangerous machinery, 10; illegal public exhibition of children, 13. Total, 56.

Time Notices: Not posted, 28; time other than stated, 19. Total, 47.

Illegal Advertising, 8.

Unguarded Machinery, 12.

Labor, General: One day's rest in seven, 99; holiday employment, 4; fines, 2; weavers' specifications, 4; employed without compensation, 2; homework, 3; pay weekly, 46; failure to return certificate, 1. Total, 161.

Health and Sanitation: Toilet and washing facilities, 49; lockers, 2; locked doors, 2; lighting, 5; ventilation, 34; heating, 19; medical appliances and rest room, 2; seats for women, 2; drinking water, 13. Total, 128.

Building Operations: Building, 8; painting, 194. Total, 202.

Public Works: Predetermined rate, 2; overtime employment, 4; citizens' preference, 6; veterans' preference, 9; violation of the weekly payment law, 25; wage classification, 3; laborers' vacations, 5. Total, 54.

Total number of complaints: Non-payment of wages, 2,974; others, 1,274. Total, 4,248.

INDUSTRIAL SAFETY

The inspection service was engaged continually in the work of preventing exposure of employees to the operating dangers of machinery. Power transmission equipment was given special attention during the year. There were 2,405 orders issued by the department for the safeguarding of machinery, and these met with prompt compliance by employers.

Devices to remove hazards on power transmission, including sprockets, interlocking gears and set screws on revolving parts; and the installation of emergency controls on each floor or the use of friction clutches, tight or loose pulleys, motor stops, were provided.

Orders to comply with rules in this connection were promptly concurred in. This was true of others relating to belts and pulleys dangerously adjacent to passageways, working positions of operators and those located very near commonly used passageways; vertical or horizontal transmission shafting; clutches, having projections or revolving parts exposed to contact; couplings and collars of the dangerous type; balance and flywheels without protection on projecting keys in shafting.

Shielding the eyes of employees and caring for the hands and fingers exposed at the point of operation were prominent features in this activity. Special attention

was given to circular saws, jointers and planers, matchers, moulders, power punch presses and drop forge machinery. This work was done in the course of inspection in textile mills; dyeing and finishing textiles, including woolen and cotton goods; shoe factories; tanneries; clothing factories; printing and publishing establishments; wood-working plants, including furniture, cabinets, doors, and other establishments engaged in the manufacture of small products; foundries and machine shops; paper and wood pulp establishments; slaughter and meat-packing houses in the manufacture of electrical machinery, apparatus and supplies; motor vehicles, including bodies and parts; confectionery; cutlery and edge tools; silk manufacturing; electric light establishments; jewelry manufacturing; soap manufacturing and other industries, including all branches of the building trades. Protection at the point of operation was given a major part in this work. This was found necessary in the safeguarding of stamping and punch press machinery and shears for cutting steel.

The installation of interlocking equipment, the safe control of motor-driven machines for dough-mixing and meat-grinding in mercantile establishments, and providing of safety flanges and hoods for metal-grinding machinery was included.

Careful attention was given to safety control of extractors in laundries and to the use of safeguards on calender rolls and on embossing and hide-splitting machinery.

The use of a two-hand trip process on guillotine papercutters was urged.

While it is difficult to make comparisons with former years because of the lack of the total number of exposure hours, this work of careful inspection of machinery in the modern establishment is still an important factor.

Following the usual practice in this report, we give herewith the number of machinery accidents by manner of their occurrence:

Machinery Accidents by Manner of Occurrence

	1919	1935
Starting, stopping or operating machinery	9,675	1,901
Adjusting machine, tool or work	1,758	606
Hit by flying objects	3,285	313
Cleaning or oiling machines	1,298	337
Breaking of machine, tool or work	620	204
Repairing machine	223	148
All other	1,631	1,214
Totals	18,490	4,723

Of the 4,723 machine accidents, 1,901, or 40.3%, occurred while "starting, stopping or operating machinery." There were 2,074 of these cases which occurred at the "point of operation."

Further analysis of the table is given in the following summary showing the part of the machine on which the injury occurred:

Machine Accidents by Part of Machine

Part of Machine	Number of Cases	Per Cent of Total
All other	2,213	46.9
Point of operation	2,074	43.9
Belts	176	3.7
Gears	168	3.6
Cranks and eccentrics	68	1.4
Set screws, keys and bolts	11	.2
Flywheels	8	.1
Counterweights	5	.1
Totals	4,723	100.0

In 1919, out of a total of 67,240 tabulatable injuries, 1,750, or 2.6%, resulted in permanent partial disability. During the year ending June 30, 1935, there were 32,973 tabulatable accidents, of which 890, or 2.7%, were permanent partial dis-

ability injuries. These accidents included loss of fingers, hands, thumbs, toes, feet, limbs and sight of eyes.

Inspectors made special inquiry concerning the practice of cleaning machinery in factories, workshops, mechanical or mercantile establishments, and in some cases written objection was made against the practice of cleaning machinery in motion. Many concerns now post warnings to the employees against this custom. Such action was ordered in plants where it was found necessary. Cleaning or oiling machinery caused 1,298 injuries to employees in 1919, and accidents through this cause dropped to 337 in 1935.

The reduction of specific injuries is another result of regular supervision and frequent inspection of machinery. These accidents usually mean permanent loss of wage-earning capacity. The employees having this experience are frequently compelled to enter upon new employment in the industrial field. Most of these have several years of apprenticeship in their chosen trade, and through their long experience become competent in operating intricate machinery.

Progress in preventing accidents may be seen in these comparative tables:

Specific Injuries

	1919	
	Number of Cases	Per Cent of Total
One finger or thumb lost at or above first joint	1,109	73.1
Two fingers on one hand	171	11.2
One eye	115	7.6
One hand	60	3.9
One toe	25	1.6
One foot	15	1.0
Two toes	12	.8
Both feet	2	.1
One hand and one finger	2	.1
One hand and one foot	1	.1
Both eyes	1	.1
One finger on one hand and one on other	1	.1
One finger on one hand and two on other	1	.1
Two arms and two legs	1	.1
One hand and one toe	1	.1
Totals	1,517	100.0

Specific Injuries

	1935	
	Number of Cases	Per Cent of Total
One or more fingers, one phalange	505	64.3
Two or more fingers, 2 or more phalanges	60	7.7
One eye	55	7.0
Right or major index finger, 2 or more phalanges	40	5.1
Right or major thumb, 1 phalange	27	3.5
One toe	20	2.6
Right or major hand or arm	17	2.2
Left or minor hand or arm	17	2.2
Right or major index finger, 2 phalanges and one or more fingers on same hand	11	1.4
Right or major thumb, 2 phalanges	8	1.0
One foot or leg	7	.9
Right or major thumb, 2 phalanges, and one or more fingers	4	.5
Two or more toes	3	.4
Two or more fingers or thumbs on both hands	3	.4
Right or major thumb, 1 phalange, and one or more fingers	2	.2
Right or major thumb, 1 phalange and right or major index finger, 2 phalanges	1	.1
One finger or thumb and one toe	1	.1
One eye and 2 or more fingers	1	.1

Specific Injuries — Continued.

	1935	
	Number of Cases	Per Cent of Total
Both hands or arms	1	.1
Both feet or legs	1	.1
Both eyes	1	.1
	785	100.0

Non-Machinery Accidents

Falls of persons and stepping on or striking against objects caused more accidents during the year than contact with machinery parts. The handling of objects and tools caused more industrial injuries than either falls or machinery accidents. These facts are well known to the inspectors who continually advise against conditions responsible for the origin of such accidents. Only through concerted effort of employees and management under intelligent direction will non-machinery accidents be reduced. Recommendations by inspectors in this connection include instructions for the careful handling and storing of raw material and preventing the overcrowding of employees in work places. The number of tabulatable injuries arising from non-machinery accidents and the extent of the disability which they caused appears from the following table:

*Total Tabulatable Injuries, by Cause of Injury and Extent of Disability**

Cause of Injury	Totals	Deaths	Permanent Total Disability	Permanent Partial Disability	Temporary Total Disability
Handling of objects	9,673	33	1	143	9,496
Falls of persons	6,146	34	4	52	6,056
Vehicles	2,611	65	2	33	2,511
Hand tools	2,337	4	—	61	2,272
Stepping on or striking against objects	1,962	12	—	17	1,933
Falling objects, not being handled by employees	1,428	17	1	16	1,394
Miscellaneous causes	1,787	13	—	20	1,754
Explosions, electricity, etc.	1,456	23	1	12	1,420
Occupational diseases	676	9	2	18	647
Animals	174	1	—	2	171
	28,250	211	11	374	27,654

*Taken from Table X of the Department of Industrial Accidents, report for year ending June 30, 1935.

Free Egress from Factory Buildings

Frequent inspection of old factory buildings was necessary to maintain egress as required by statute. Lacking the facilities of modern structures, they present an important problem to the inspection service. Adequate means of exit from a building crowded with small workshops are maintained only through continual supervision. Close attention was given to establishments where inflammable compounds or explosives were used and processes carried on that would obstruct or render hazardous the egress of operatives in case of fire. In factories, workshops and manufacturing establishments where doors were locked, bolted or otherwise fastened in violation of law, it was necessary to issue 130 orders. Inspection reports on file indicate these applied to small workshops mainly in the wood-working trade, shoe factories and in the clothing and rubber garment industry.

In some of the tenant factory buildings means of egress was provided while certain doors were locked or otherwise obstructed so as to prevent quick escape in case of fire or other catastrophe. In nearly all such instances materials were stored temporarily in front of these outlets or in such a manner as to make exit difficult. Passageways and stair landings were filled with obstructions, including barrels, boxes, refuse cans and containers. This practice was found to prevail chiefly in manufacturing establishments. Prompt compliance with the law followed when the requirements were made known to the management.

Warehouses in which small workshops are located were given close attention in this connection. In some of these places dangerous conditions were found, and orders issued by the department to correct them were complied with. Efficient

co-operation was received in this work from municipal officials engaged in fire prevention work. In places where gasoline, naphtha, petrol, benzine, ether, turpentine, benzol, methyl alcohol and carbon disulphide were found, careful examination of conditions was made. These included processes in rubber compounding, dry cleaning, engraving, commercial photography, and were in prominent use as solvents for paints, dyes, oils, cement and varnishes. Precautions taken in some establishments to deal with these dangers included the installation of fire-proof rooms, closed safety containers, local exhaust equipment, and in some cases the substitution of less inflammable and non-explosive compounds.

SPECIAL WORK IN HAZARDOUS PLANTS

Following the established practice of giving special attention to plants where well-known hazards exist, 290 quarterly visits were made to these establishments. Inspection of the plant, including examination of machinery and processes in operation, was made in concerns engaged in the manufacture of fireworks, brake linings, rubber goods, cements, paints, rayon, paper, celluloid products and porcelain enameled articles.

This plan was followed also in granite quarries, foundries, stonecrushing plants, wood heel factories and concerns making use of benzol and manufacturing chemicals.

In the files of the Department are records showing the condition of the plant, including its history of accidents, the type of safety program usually followed, the nature of the complaints received against the firm since the time of the last inspection and a statement indicating in general the attitude of the concern with respect to its compliance with the law. From this record may be obtained information showing the type of gases, fumes and dusts which are found in each establishment.

The regular testing of equipment to remove impurities harmful to health took place and the safeguarding of machinery had a prominent part in this work. The work in this connection is of great importance to the reduction of work injuries and provides a system of protection to the employees which is helpful in maintaining the plant in safe condition.

Plants engaged in the manufacture of fireworks and products, including the use of volatile liquids capable of producing high concentration of dangerous fumes in the workroom, were inspected regularly each three months. Practical measures were suggested for the safety of workmen and co-operation was secured.

During the year 20 orders were issued to provide better ventilation and to take care of the removal of dusts, fumes and gases. There were 40 orders to safeguard machinery and 10 to provide toilet and washing facilities. Eight concerns were ordered to install first aid rooms or to replenish the medical chest. Lighting was found poor in three places and in two others the passageways were not clear and called for the issuance of orders.

FIRST AID TREATMENT

There were 1,090 orders issued by the department requiring compliance with the first aid provisions of the statutes and the department rules and regulations. Failure to furnish basins, hot water, suitable chairs, blankets and the replenishing of the first aid chests was responsible for the issuance of these orders. Persons other than a qualified nurse, employed in giving first aid treatment, were required to furnish certification from a doctor that they are competent to do the work. Injuries resulting from infection continued to be a frequent cause for incapacity and partial disability. A comparison of statistics of infection shows that there were 215 fewer cases in the year 1935 than in the previous year. One out of every eleven tabulatable injuries in 1935 resulted in infection. The following table shows the infection by nature of injury and extent of disability:

Infection by Nature of Injury and Extent of Disability

Nature of Injury	Totals	Deaths	Permanent Partial Disabilities	Temporary Total Disabilities
Cuts, punctures, lacerations	2,046	19	1	2,026
All other	356	3	1	352
Abrasions	351	5	1	345
Burns and scalds	90	1	—	89
Amputations, loss of use	80	—	80	—
Fractures	7	1	—	6
Sprains, strains	6	—	—	6
	2,936	29	83	2,824

According to the above table there were 2,936 cases of infection resulting from injuries. This is 8.9% of the total tabulatable injuries.

INJURIES TO EMPLOYED CHILDREN

During the year ending June 30, 1935, fifteen children fourteen years of age and younger were injured in their employment in street trades or other occupations permitted by the statutes.

The total number of injuries to children between fourteen and eighteen years of age, reported to the Department of Industrial Accidents, was 387, or 1.1% of all tabulatable injuries. Classified by age and sex they are as follows:

Age	Number	Boys	Girls
14	15	15	—
15	14	14	—
16	97	83	14
17	261	205	56
	387	317	70

There were no girls in this group who received permanent partial disability injuries. Six boys under 18 years of age received this type of injury. The following table shows the industry in which the accident happened and the nature of the injury:

Industry	Nature of Injury
Restaurant 1	Left hand, 2 fingers, distal phalange . . . 1
Mercantile 1	Left hand, 1 finger, distal phalange . . . 1
Municipal 1	Right hand, 2 fingers at metacarpal joint, 1
Candy packing 1	finger at proximal joint, 1 finger at terminal
Garage 1	joint and thumb at metacarpal joint . . . 1
Wood heel manufacturing 1	Right index finger at distal joint . . . 1
	Right hand, 2 fingers at second joint . . . 1
	Displacement of left side of pelvis . . . 1
	6

The causes of these accidents are as follows:

A boy 15 years of age, employed as a kitchen helper in a restaurant, caught his left hand in a bread-slicing machine, and it was necessary to amputate the middle and ring fingers at the distal joint.

Another boy 16 years of age was cleaning a meat-grinding machine in a mercantile establishment, when he caught the middle finger of his left hand in the gears, necessitating amputation of the finger just beyond the distal joint.

While employed by a town, shoveling snow off the streets, a boy 16 years of age stood on a bank of snow to allow a truck to pass by. The snow gave way and the boy fell under the truck. A wheel passed over the back of his hip, displacing the left side of the pelvis.

A boy 16 years of age, employed as a spare man in a filling station, was using a screw driver, which slipped and his forefinger on the right hand became caught in a belt. The distal phalange was amputated.

While employed as a top lift roller in a wood heel manufacturing plant, another 16-year-old boy got his right hand caught in the rollers, injuring the two middle fingers so badly that they were amputated at the second joint, the first and fourth fingers being badly crushed.

A 17-year-old boy, working as a helper on a candy press, caught his right hand between the drive gears, which are under the machine, losing the middle and ring fingers at the metacarpal joint and the index finger at the proximal joint, the little finger through the terminal phalange and the thumb at the metacarpal joint.

FATAL INJURIES TO MINORS UNDER EIGHTEEN

One minor under 18 years of age was fatally injured. A boy, employed as a helper on a truck, was standing on the back of the truck when a car came along and crushed him between the truck and the car.

BUILDING OPERATIONS

During the year there were 6,852 inspections on building operations. These included 295 inspections of stagings and 303 roofing inspections. Included in this group were 1,184 inspections on public buildings. There were 1,953 orders complied with for the safety of employees in the building trades. These included requirements for the installation of safety devices in connection with the use of electricity of dangerous voltage, protection to employees working below stagings or around floor openings, regulations to control smoke and fumes where artificial light was used and the piping of salamanders in order to provide exhaust removal to the outer air.

Examination of stagings used in the painting of buildings was prominent in this work. Safety provisions requiring that every swing stage be tied or otherwise secured to prevent swaying; that ladders used as stage beds and ladder-type platform stages be of approved design and entirely free from defects affecting their strength; providing on every swing stage one or more guard rails securely attached to the stage at each fall and extending the entire length of the outer side of the stage; trestle ladders of approved design and conforming in all respects to the rules and regulations, were given attention.

The building trades industry contributed 2,274 cases, or 6.9%, of all industrial accidents for the year ending June 30, 1935. Eighteen of these cases were fatal, or 7.5% of all fatal cases. There were 53 permanent partial disability injuries, or 6.0% of all cases of this type.

ACCIDENTS IN THE BUILDING TRADES

There were 79 accidents in the building trades investigated during the year by this department. Nineteen of these were fatal. They are as follows:

<i>Classified by Employment</i>	<i>Total</i>	<i>Non-Fatal</i>	<i>Fatal</i>
Painting	24	16	8
Building construction	15	13	2
Roofing	11	7	4
Alteration and repair	11	11	—
Sewer construction	6	6	—
Building wrecking	6	4	2
Road construction	3	2	1
Subway construction	2	1	1
Bridge building	1	—	1
Total	79	60	19
<i>Classified by Nature of Injury</i>	<i>Total</i>	<i>Non-Fatal</i>	<i>Fatal</i>
Fractures and breaks	32	30	2
Fatal falls	14	—	14
Bruises and contusions	13	13	—
Amputations	5	5	—
Burns	3	3	—
Crushed to death	3	—	3
Sprains and strains	3	3	—
Internal injuries	2	2	—
Shaken up	2	2	—
Lacerations	1	1	—
Blood poison	1	1	—
Total	79	60	19

<i>Classified by Causation of Injury</i>	<i>Total</i>	<i>Non-Fatal</i>	<i>Fatal</i>
Collapse of staging	22	17	5
Loss of balance	11	9	2
Struck by falling object	10	9	1
Falls from stagings	5	2	3
Falls from ladders	4	2	2
Slipping of planks	4	4	—
Falls from roofs	3	3	—
Breaking of gutters	2	—	2
Miscellaneous	18	14	4
Total	79	60	19

PREVENTION OF WORK INJURIES

There were 751 accidents investigated by this department during the year ending November 30, 1936, 672 of these occurring in industrial establishments and 79 in the building trades. Those occurring in the industrial establishments included 654 adults and 18 minors under 18 years of age, 89 of the total number resulting fatally, 70 of them occurring in industrial establishments and 19 in the building trades.

GENERAL ACCIDENTS

There were 672 industrial accidents investigated by this department during the year. Of this number, 616 were men and 56 women; 70 of the total number were fatal — 68 men and 2 women.

Following is a table showing the industrial accidents that were investigated during the year ending November 30, 1936. This table does not include accidents that occurred in the building trades. (See other tables for summaries of building accidents and for detailed account of eye injuries.)

INDUSTRIAL ACCIDENTS INVESTIGATED DURING THE YEAR ENDING NOVEMBER 30, 1936, BY INDUSTRY, AGE AND SEX

Industry	Total No.	M.	F.	14-17 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61-+ M. F.	Fatal M. F.								
Textile manufacturing	121	110	11	2	1	11	2	36	-	24	1	13	5	15	2	9	-	9	-
Paper manufacturing and paper products	52	45	7	-	-	6	3	16	3	12	-	3	1	5	-	3	-	1	1
Metal products	36	33	3	-	-	3	-	9	2	7	1	7	-	5	-	2	-	2	-
Electrical manufacturing	35	30	5	1	-	6	1	8	4	9	-	5	-	-	-	1	-	4	-
Shoe manufacturing	29	21	8	1	2	3	1	3	3	7	2	3	-	3	-	1	-	1	1
Machine manufacturing	23	23	-	-	-	1	-	3	-	2	-	5	-	8	-	4	-	3	-
Tanneries	21	20	1	-	-	-	-	7	-	4	-	6	1	1	-	2	-	2	-
Furniture	20	20	-	1	-	2	-	4	-	2	-	5	-	5	-	1	-	2	-
Other wooden products	19	19	-	2	-	-	-	8	-	-	-	7	-	-	-	2	-	-	-
Tool manufacturing	17	17	-	-	-	1	-	7	-	-	-	5	-	3	-	1	-	1	-
Rubber products	16	15	1	-	-	3	1	-	-	5	-	5	-	2	-	-	-	1	-
Printing and publishing	15	15	-	-	-	5	-	3	-	4	-	3	-	-	-	-	-	1	-
Wire manufacturing	13	11	2	-	-	-	-	6	1	1	1	4	-	-	-	1	-	2	-
Miscellaneous food products	12	11	1	-	-	1	-	2	1	3	-	4	-	-	-	1	-	1	-
Automobile service	11	11	-	-	-	-	-	2	-	8	-	1	-	-	-	-	-	1	-
Chemical manufacturing	11	11	-	-	-	1	-	3	-	2	-	4	-	-	-	1	-	-	-
Laundries	10	7	3	-	-	1	-	2	1	-	-	3	1	-	1	-	-	2	-
Shoe findings	10	10	-	1	-	2	-	5	-	2	-	2	-	-	-	-	-	1	-
Transportation	10	10	-	-	-	-	-	2	-	4	-	1	-	1	-	2	-	2	-
Jewelry manufacturing	9	7	2	2	-	-	-	1	1	1	-	3	-	-	1	-	-	-	-
Power and light	9	9	-	-	-	-	-	-	4	-	-	3	-	2	-	-	-	5	-
Toys and games	9	8	1	-	-	5	-	2	-	1	-	-	-	-	-	1	-	2	-
Building maintenance	8	8	-	-	-	-	-	3	-	2	-	1	-	-	-	2	-	2	-
Confectionery	8	7	1	-	-	2	1	1	-	2	-	1	-	1	-	-	-	2	-
Pyroxylin plastics	8	8	-	-	-	1	-	1	-	2	-	1	-	-	-	3	-	1	-
Sheet metal work	8	6	2	-	-	1	2	4	-	-	1	-	-	-	-	-	-	2	-
Abrasives	7	6	1	-	-	1	1	1	-	3	-	1	-	-	-	1	-	2	-
Bakeries	7	7	-	-	-	2	-	4	-	-	-	-	-	1	-	-	-	-	-
Machine parts	7	7	-	-	-	1	-	2	-	3	-	1	-	-	-	-	-	-	-

**INDUSTRIAL ACCIDENTS INVESTIGATED DURING THE YEAR ENDING NOVEMBER 30,
1936, BY INDUSTRY, AGE AND SEX — Continued.**

Industry	Total No.	M.	F.	14-17 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61-70 M. F.	Fatal M. F.
Mercantile estab- lishments . . .	7	7	—	1 —	1 —	3 —	2 —	— —	— —	— —	— —
Boiler manufactur- ing . . .	6	6	—	— —	1 —	1 —	1 —	2 —	1 —	— —	— —
Cotton products . .	6	4	2	1 1	1 —	1 1	1 —	— —	1 —	— —	— —
Brake lining manu- facturing . . .	5	5	—	— —	2 —	2 —	1 —	— —	— —	— —	— —
Fuel dealers . . .	5	5	—	— —	— —	2 —	1 —	— —	2 —	— —	2 —
Ice manufacturing . .	5	5	—	— —	1 —	1 —	1 —	1 —	1 —	— —	2 —
Optical manufactur- ing . . .	5	5	—	— —	1 —	3 —	— —	1 —	— —	— —	— —
Warehouses . . .	5	5	—	1 —	1 —	— —	1 —	— —	1 —	1 —	1 —
Hat manufacturing . .	4	4	—	— —	1 —	2 —	1 —	— —	— —	— —	— —
Novelties . . .	4	4	4	— —	1 —	1 —	1 —	— —	1 —	— —	— —
Spinning . . .	4	3	1	— —	1 —	— —	1 —	1 —	1 —	— —	1 —
Elevator installation	3	3	—	— —	— —	— —	— —	2 —	1 —	— —	3 —
Foundry . . .	3	3	—	— —	— —	2 —	— —	— —	1 —	— —	— —
Gas manufacturing . .	3	3	—	— —	— —	— —	3 —	— —	— —	— —	1 —
Marble and stone work . . .	3	3	—	— —	— —	2 —	— —	— —	1 —	— —	2 —
Milk dealers . . .	3	3	—	— —	— —	— —	2 —	— —	1 —	— —	— —
Stove manufactur- ing . . .	3	2	1	— —	— —	1 —	1 —	— —	— —	1 —	— —
Miscellaneous . . .	37	36	1	1 —	3 1	9 —	6 —	8 —	8 —	1 —	4 —
Totals . . .	672	616	56	14 4	71 14	174 18	132 8	113 8	71 4	41 —	68 2

Classified by type of injury, they are as follows:

Type of Injury	Total	Non-Fatal	Fatal
Amputations	243	243	—
Abrasions, bruises and contusions	120	120	—
Fractures and breaks	83	58	25
Cuts, punctures and lacerations	75	75	—
Eye injuries	56	56	—
Burns and scalds	47	42	5
Crushed to death	13	—	13
Fatal falls	8	—	8
Infection	7	2	5
Electrocutions	4	—	4
Internal injuries	4	1	3
Suffocation	4	2	2
Concussion	3	3	—
Hernia	3	—	3
Drowned in tanning fluid	1	—	1
Strangulation	1	—	1
Totals	672	602	70

Employees sustaining these injuries were employed at the following occupations:
Textile Mills: Card tenders, drawing tenders, winders, spinners, weavers, kettle men and loom fixers.

Paper Mills: Feeders, sorters, pressmen, millwrights and finishers.

Metal Products: Power press operators, assemblers, tube drawers, punch press operators and rollers.

Electrical Manufacturing: Press operators, die setters, electricians and repair men.

Shoe Manufacturing: Cementers, cutters, lasters, treers, fitters, edge trimmers and packers.

Tanneries: Beamhouse workers, seasoners, buffers, shavers, colorers and fleshers.

Furniture and Wood Products: Planers, saw operators, wood workers, carpenters and millworkers.

Food Products: Mixers, millers, brewers, packers and bakers.

Contact with machinery caused 518 of the 672 accidents that were investigated. 532 of the total provided safeguards. 55 had full time nurses and doctors in the first aid rooms, 94 had a full time nurse with a doctor on call and the remaining 244 of a total of 393 establishments maintaining first aid rooms had a nurse or

first aid attendant at all times. Medical kits were maintained in 214 other establishments.

EYE INJURIES

The use of hand tools continues to be one of the leading causes and is responsible for more than one-half of the eye injuries in the past fourteen years. Flying parts of wood or minerals, chips of metal, splashing of liquids, including molten metal and acids, and various explosions, continue to furnish fruitful sources of eye injuries. Accidents of this type occur frequently from blows by belts, by the processes of grinding and polishing, from sand-blasting, and flying objects of all kinds.

Another form in many of these injuries includes neglect of slight cuts which result in infection; exposure to excessive radiating heat; and eye strain resulting from improper or inadequate lighting, and lack of competent first aid, all of which contribute materially to sources of eye injuries.

Protection of the eyes of employees through the enforcement of statutes for this purpose occupied prominent place in the work accomplished through inspection of industrial establishments. When the nature of the work or the machinery used permitted danger or injury to the eyes of the employees, mechanical devices were required for their protection. Transparent shields and suitable goggles were among the means required for this purpose. There was the usual difficulty experienced in failure of workmen to use these protective devices, for these proved to be uncomfortable at times. The nature of the work often covers the lenses with dust, steam or perspiration. In emery grinding, a glass guard securely fastened in a frame and properly attached to the mechanism, is better protection in a case where several men use the wheels. Head shields or helmets were suggested for use in many cases where exposure of the eyes to intense heat and light existed. These provisions were given co-operation in establishments where danger to the eyes prevailed in the course of employment.

The industrial bulletin issued by the Department of Labor and Industries, containing suggestions to employers and employees for the prevention of eye injuries, was circulated among the employees working in trades where these injuries were numerous. The importance of taking care of the eyes and advice concerning proper first aid treatment was directed to the cause of eye strain, especially to employees working in clerical services and in drafting, sewing, tailoring, dress-making, wood craft, typesetting, spinning and other general textile work, shoe and leather work, tool making, color working and metal grinding and polishing.

EYE INJURIES

There were 56 eye injuries investigated by this department during the year: 50 men and 6 women. They are as follows:

<i>Classified by Industry</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>
Textile mills	9	8	1
Electrical manufacturing	7	5	2
Automobile service	5	5	—
Paper products	5	3	2
Miscellaneous food products	4	4	—
Foundry	3	3	—
Metal products	3	3	—
Shoe manufacturing	3	3	—
Boiler making	2	2	—
Chemical manufacturing	2	2	—
Jewelry manufacturing	2	2	—
Miscellaneous	11	10	1
Total	56	50	6

Classified by Nature of Injury

Foreign bodies	17	Loss of eye	6
Burns	11	Abrasions	3
Irritation	9	Loss of sight	2
Lacerations	7	Rupture	1
Total			56

These injuries were caused by flying chips of metal, splatterings of alcohol, acids and other irritating solutions, particles of emery, and irritation from gases and fumes.

Typical illustrations are:

A girl stooped to pick something from the floor and struck her head against the corner of a machine. A few days later she had to have her eye removed as it had become infected, due to the head injury.

A piece of hard metal broke while a man was putting it into a machine and a part of it penetrated his eyeball, causing the loss of his eye.

Several men had emery dust enter their eyes while they were grinding metals on emery wheels.

Other employees suffered burns and irritations of the eye when the caustic solutions they were using splashed into their eyes.

LABOR LAWS — WOMEN AND MINORS

In manufacturing, mechanical, mercantile and other establishments 43,737 inspections were made. These included manicuring and hairdressing establishments, motion picture theatres, express and transportation companies, telegraph offices and telephone exchanges. Instructions were given to responsible persons in each place visited regarding the posting and proper making out of time notices for women. In districts where manufacturing concerns employed persons in shifts during the peak season, night inspection was the rule. The employees working in each tour of duty were interviewed and their hours of employment verified through examination of the lists on file. Much time was given to this type of work in hotels, restaurants, lunch rooms and establishments where alcoholic beverages as defined in section 1 of chapter 138 were manufactured, packed, wrapped or bottled. This work resulted in compliance with 7,101 orders issued by the department.

Night employment of girls under twenty-one years of age in roadside stands was given careful supervision. Co-operation on the part of the general public in the enforcement of laws restricting the hours of labor for women and minors is shown in the 606 complaints to the department from this source. In 241 cases violation of law was found. In some of these court action was taken against the employer. In others prompt compliance with the law upon the issuance of orders by the department was obtained. Employment at time other than stated on the printed notice appeared to be a most common form of violation. Many of these cases happened when men and women employed together and payment for work was on a piece basis. Pieceworkers are often irregular as to their time of coming to work and leaving work. Inspectors made frequent visits to such plants and checked up the employment of women with special reference to observance of the working hours as posted.

Child Labor

The employment of children in factories, workshops, manufacturing, mechanical and other establishments was regularly supervised. Careful examination was made of certificates on file, and work done by the child was investigated to determine if the provisions of the law were complied with. In many cases where children were found working in proximity to dangerous machinery, it was made plain to the employer that this was forbidden by statute. Co-operation in this matter was readily given by the well-established concerns of Massachusetts. In establishments where children were given casual employment, such as chain stores, private bowling alleys, theatres, roadside stands, dance halls and similar places, regular supervision was maintained. This work occupied a prominent place in the inspections made at beach resorts and amusement parks in the summertime. Under these circumstances children were occasionally found employed during prohibited hours in small stores or on motor trucks.

The part-time employment of children in many of these places required inspections in the early evening hours. Much of this work was done on Saturday evening and nights before holidays. It included checking up the appearance of children in theatrical and dancing exhibitions and covering child vocalists and performers on musical instruments.

Special attention was given to many of the chain stores where the cash-and-carry system had caused some illegal employment of small boys in delivering goods purchased in these places. Young boys were found carrying heavy bundles and packages up three flights of stairs. In this work the police departments have co-operated with the division.

The employment of children by milk wagon drivers in the early morning was investigated by the inspectors, who worked in groups covering the urban districts of the state. Much was accomplished in preventing this harmful type of child labor.

Co-operation was received from superintendents of schools and attendance officers and directors of continuation schools in conveying to this division information regarding such violations of child labor laws. The number of orders relative to procuring and returning certificates for minors under twenty-one years of age issued during the year was 3,302.

Lunch Period

Women and children employed in factories or workshops for more than six hours at any one time shall be provided with an interval of at least forty-five minutes for a meal. To secure compliance with these requirements, it was necessary to issue 20 orders to various establishments. Most of these were concerned with small workshops where the number of women employed had increased and then came within the scope of the law. In the textile establishments operating upon a two-shift basis, there was some difficulty with respect to the afternoon shift when it was found difficult to provide adequate opportunity for lunch period.

Providing Seats

There were 41 orders issued in this connection to manufacturing, mechanical or mercantile establishments. There was co-operation received in these matters by compliance with orders issued. These applied largely to the department stores in which the working force was increased to meet the demands of the holiday trade and special sales. Prompt adjustment was made in these instances upon notice being received from the department requiring compliance with the law.

In connection with manufacturing processes, where it was plain that the work could not be done properly while operators were sitting, there were several conferences which resulted in reaching an amicable understanding. This practice did much to remove some of the objections in this connection, and when the purpose of the law to protect the health of the employees was explained in detail, there was willing compliance with the requirements. In cases where the seating facilities were discovered to be unsuitable and dangerous and others failed to provide for suitable posture, better equipment was secured when the establishments were required to provide adequate accommodations.

HOME WORK

During the year there were 130 licenses granted to persons to make, alter, repair or finish wearing apparel in a room, apartment or dwelling house. These were principally concerned with work done on men's shirts, household and hospital garments, embroidery on women's dresses, neckwear and knitted outerwear.

In home work on articles other than wearing apparel, which included particularly the making of paper novelties, labels, tags, the names and addresses of the workers so hired, employed or contracted with were required of the employers, and the names of all women and minors dwelling in the room or apartment, as well as the names of girls under twenty-one and boys under eighteen years of age were secured and the records filed with the department. In every case, statutory obligations resting upon the employers with reference to hiring women and children were made known to them. In checking up possible illegal employment, homes were visited by inspectors in cases where children under eighteen years of age were members of the family. The type of employment in which this kind of homework is being carried on included the making of electrical parts and sockets, tags, baseballs, greeting cards, shoe buckles, paper ornaments, elastic fabrics, artificial flowers, hand-braided rugs, curtains and draperies and celluloid toys.

In the enforcement of this statute there were 32 orders issued by the department, which were promptly complied with.

SUNDAY WORK AND ONE DAY'S REST IN SEVEN

There were 628 orders issued pertaining to Sunday work and the One Day's Rest in Seven Law, nearly twice as many as in the previous year, and the records indicate that these were promptly complied with.

The enactment of the statute in 1935, by which it was extended in its scope, brought to many employees the benefit of one day's rest in seven. Many of the orders issued were concerned with the section of the statute requiring the posting of schedules containing a list of names of those required or allowed to work on Sunday, designating the day of rest for each. In some instances they included the keeping of the time book showing the names of employees and the hours worked by them on each day.

From many of the cities in the commonwealth much assistance was given in the enforcement of this law when their police departments filed the names of concerns given permits to do Sunday work and adding the reason assigned for permission to work on Sunday because of labor called for by an emergency that could not reasonably have been anticipated. In checking up these cases it was found to be work in some instances that did not harmonize with the Sunday law and could not be construed as an emergency. This practice did much to improve the enforcement of the law relating to Sunday work.

INDUSTRIAL HEALTH

Conditions menacing the health of the employees were given prompt attention in the inspection of industrial establishments. Dangerous fumes and irritant dusts arising in processes involving the use of industrial poisons were examined carefully. In this work the co-operation of the management was secured to safeguard against any unwholesome conditions of this type. Indicating the progress made during the year, there was general compliance with 4,133 orders issued for this purpose. Of this number, 2,462 were for conformity with regulations requiring suitable toilet and washing facilities. These were concerned generally with the problem of sinks and other appliances, based upon the maximum number of persons entitled to use the same at any one time, and requiring adequate lighting facilities and keeping floors clean. Providing employees with running hot and cold water was also included.

Special inspections were made in certain trades during the period of the year when general ventilation was impaired by reason of closed windows and doors. Conditions found by the inspectors in the plants visited and promptly corrected by the employers were these: Entrances to water-closet compartments opening directly into the room; inadequate lighting in toilet rooms and compartments; not insuring privacy; compartments for women inside the toilet rooms not provided with proper doors or furnished with suitable fastenings.

Industrial poisons were found in 6,019 places of employment inspected during the year. Certain processes required the use of acetone, cyanide of potassium, aniline, lead oxide, benzene, chromic acid, mercury, sulphuric acid, oil and other toxic substances. These substances were handled by employees in the course of their work, including shoe manufacturing, wood heels and leather finishing, and the manufacture of rubber and rubberized fabrics, textile fabrics, brake linings, storage batteries, automobile bodies, metal plating, jewelry, respirators and paints.

INDUSTRIAL LIGHTING

During the year 344 orders were issued, requiring compliance with the Lighting Code provisions. Most of these were in connection with the proper maintenance of existing equipment. Failure to keep lamps free from accumulated dust and dirt prevented adequate illumination in many instances. In establishments where fatigue among the employees was discovered, changes were made in the location of the light source or proper adjustment of the work processes took place. Good co-operation was experienced in procuring adequate intensity of illumination. In many lines of manufacturing this is desirable for the equality of the product and is necessary to produce a satisfactory volume of output. In fine work, requiring close discrimination in detail, light measurements were made in the immediate

work area to determine adequate intensity. Lighting circuits for stairways and exits, as required by the regulations, were carefully examined to determine that they extended inside the working room so as to light the immediate entrance to the stairway or exit. In some cases it was found that the system was not independent of the regular lighting of the working place, and connection extending back to the main service entrance for the building was provided.

Night inspections were made in some plants where employees were exposed to glare from inadequately shaded lamps of high brilliancy and reflection from polished surfaces. Improvement was made in the lighting facilities in exits, stairways, hallways, elevator cars, washrooms, toilet rooms and other parts of industrial plants to comply with orders issued by the department during the year. These included the provisions relating to the height and location of lamps, the use of shades and reflectors and other means necessary for proper distribution of light in the workroom.

Basement lighting was given a prominent place in the inspection of industrial establishments. Used in some mercantile concerns for storage purposes, a number of these basements were found without suitable illumination to prevent employees from stumbling over objects and sustaining serious injuries through falling. Large department stores were also included in this work. Stairway lighting was found to be poor in some of these places, and difficulty in locating units prevailed because of overcrowding the space used for storing merchandise. These conditions were corrected.

VENTILATION

Efficient ventilation of foundries and workshops was required by the department in 291 orders issued in this connection. Satisfactory co-operation was received in these and compliance with the requirements promptly given. Local exhaust equipment to control exposure at the point of origin was included in most of these cases. Duct openings and shape of hoods was supervised closely and tests made of the ventilating system to determine its efficiency. Some of these were found operating without proper hoods to adequately control the enclosure at the seat of dust origin and particles escaped into the workroom. Heated fumes were carried into the atmosphere in the air currents in the workshop because the opening of the hood was too large to provide for their withdrawal through the duct. Hoods used for the collecting of the dust were found in some cases too small for efficient protection to employees. Duct openings were found to be inadequate and easily blocked up with refuse material. Hoods were frequently detached from the ducts and in some cases they were broken and failed to function properly. The adjusting of these conditions with the requirements of the law was an important factor of the inspection work during the year. It represents the work done to maintain efficient localized exhaust ventilation as the means of preventing the inhalation of impurities harmful to health.

Plants inspected in this connection included shoe factories, foundries, metal-plating concerns, wood-working establishments and firms engaged in the manufacture of rubber products and the making of asbestos fabrics. Mechanical means used for the removal of dust were examined in the course of inspection in places operating emery, grinding, polishing and buffing wheels. Foundry operations in which smoke, gases or dusts figure prominently were included. Laundries, hotel kitchens and other places where steam and vapor made the conditions unbearable for the employees were included.

In newspaper and printing establishments, stereotypers, kettles and machine dryers were inspected regularly and correction was made where defective exhaust pipes were found. There was general co-operation manifested in compliance with the laws designed to maintain conditions helpful in maintaining health.

OCCUPATIONAL DISEASES

There were 229 cases of occupational diseases investigated by this department during the year. These include 180 men and 49 women. Ten of the total number were fatal cases. In each instance the workplace was inspected and suggestions were given to prevent recurrence. These cases are classified as follows:

*Cases of Occupational Disease Investigated During the Year Ending November 30, 1936,
by Disease, Age, and Sex*

Disease	Total	Total M. F.	15-17 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61- + M. F.	Fatal M. F.
Dermatitis	173	125 48	2 3	13 13	32 14	28 10	26 8	10 -	14 -	- -
Lead poisoning	20	20 -	- -	- -	5 -	6 -	7 -	1 -	1 -	1 -
Gas and fume poisoning	12	12 -	- -	3 -	2 -	4 -	3 -	- -	- -	- -
Anthrax infection	8	8 -	- -	- -	- -	7 -	1 -	- -	- -	- -
Pneumococcosis	7	7 -	- -	- -	- -	- -	2 -	2 -	3 -	4 -
Silicosis	4	4 -	- -	- -	- -	- -	- -	2 -	2 -	2 -
Anaemia	3	3 -	- -	- -	1 -	1 -	1 -	- -	- -	2 -
Asbestosis	2	1 1	- -	- -	- -	1 -	1 -	- -	- -	1 -
Totals	229	180 49	2 3	16 13	40 14	47 10	40 9	15 -	20 -	9 1

Dermatitis

There were 173 dermatitis cases investigated during the year. 125 men and 48 women. The following table is an illustration of these cases by Industry, Age and Sex.

*Dermatitis Cases Investigated by this Department During the Year Ending November
30, 1936, by Industry, Age and Sex*

Industry	Total	Total M. F.	15-17 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61- + M. F.
Textile manufacturing	32	31 1	1 -	6 1	7 -	8 -	4 -	1 -	4 -
Shoe manufacturing	31	15 16	- 1	- 5	3 4	3 1	6 5	1 -	2 -
Tanneries	28	25 3	- -	2 -	5 -	5 3	9 -	4 -	- -
Electrical manufacturing	13	5 8	- 2	1 2	- 1	3 2	1 1	- -	- -
Hat manufacturing	12	8 4	- -	2 1	3 2	3 1	- -	- -	- -
Food products	8	5 3	- -	- 1	3 -	- 1	- 1	- -	2 -
Rubber manufacturing	8	6 2	- -	1 -	2 2	1 -	2 -	- -	- -
Chemical manufacturing	5	5 -	- -	- -	3 -	2 -	- -	- -	- -
Metal products	4	3 1	- -	1 -	1 1	- -	- -	- -	1 -
Cutlery	4	4 -	- -	- -	- -	- -	- -	3 -	1 -
Furniture	4	2 2	- -	- -	- 1	1 1	1 -	- -	- -
Shoe findings	4	1 3	1 -	- -	- 2	1 -	- -	- -	- -
Machinery manufacturing	3	3 -	- -	- -	1 -	1 -	1 -	- -	- -
Tool manufacturing	3	2 1	- -	- -	1 1	- -	1 -	- -	- -
Printing	2	2 -	- -	- -	1 -	- -	- -	- -	1 -
Miscellaneous	2	2 -	- -	- -	1 -	1 -	- -	- -	- -
Totals	173	125 48	2 3	13 13	32 14	28 10	26 8	10 -	14 -

Employees suffering from this illness were employed at the following occupations:

Textile Mills: Color strainers, kettle hands, waste hands, finishers and washer tenders.

Shoe Manufacturing: Shoe dressers, cementers, stitchers and assemblers.

Tanneries: Cellar workers, wet wheelers, lumpers, tanners and seasoners.

Electrical Manufacturing: Solderers, press operators and pasters of mica.

Hat Manufacturing: Washers, cutters, stiffeners and cleaners.

Miscellaneous Industries: Packers, cementers, grinders, finishers, assemblers, winders, cleaners and polishers.

The cause was traced to the following reasons:

Textile Mills: Sorting oily wool; handling chrome and aniline dyes; and using alkali solutions.

Shoe Manufacturing: Handling of rubber cement; of shoe dressings, of leather dyes and of cleaning chemicals.

Tanneries: Washing skins treated with alum; sodium bisulphite and lime; handling of chrome tanned skins; contact with sulphuric acid and chromic acid.

Electrical Manufacturing: Contact with mica, shellac, alcohol and chlorinated naphthalene; handling of lead and aluminum solder.

Hat Manufacturing: Hot solutions of borax and shellac, use of cleaning fluids, bleaches and dyes.

Miscellaneous: Contact with liquid lime, sulphur, brine caustics, benzol, chrome, cleaning solutions and colored pigments.

Lead Poisoning

There were twenty cases of lead poisoning investigated by this department during the year. All were men and one was a fatal case. The following table illustrates these cases by industry and age.

Lead Poisoning Cases Investigated by this Department During the Year Ending November 30, 1936, by Industry and Age

Industry	Total	Fatal	21-30	31-40	41-50	51-60	60- +
Painting	7	1	—	3	2	1	1
Battery manufacturing	4	—	2	1	1	—	—
Foundries	3	—	2	1	—	—	—
Auto assembling	2	—	—	1	1	—	—
Metal goods	2	—	—	—	2	—	—
Miscellaneous	2	—	1	—	1	—	—
Total	20	1	5	6	7	1	1

The men employed as painters were all exposed to lead fumes. One man used a spray gun to spray red lead paint on steel work, another was employed as a painter for 21 years and suffered from chronic lead poisoning. This case proved fatal. The men employed in the making of batteries melted solder with gas torches and inhaled the lead fumes. Others were exposed to the fumes in the melting of metals.

Gas and Fume Poisoning

There were twelve cases of gas and fume poisoning investigated during the year. All of these occurred to men and none of these were fatal.

Typical cases are as follows:

A truck driver was overcome by carbon monoxide fumes while driving in a closed cabin type of truck.

Another driver was soldering the car radiator while the motor was running and was overcome by carbon monoxide gas.

An automobile mechanic inhaled exhaust gases while working in a closed garage.

An employee of a chemical concern collapsed from CO² inhalation and fell into a pit, where there was an accumulation of dangerous gases. He was quickly taken to a hospital, where he remained unconscious for twelve hours. There are 250 pounds of coke burned in this place daily. A carbon monoxide indicator was purchased and the definite percentage of CO² is now recorded on meters hourly in an effort to prevent a recurrence of this case.

Two other men were overcome by fumes from leaking pipes.

Another man cleaned furs with carbon tetrachloride and became ill from the fumes.

Others inhaled sulphur dioxide fumes and formaldehyde fumes in the course of their employment.

Anthrax Infection

Eight cases of anthrax infection occurred in Massachusetts during the year ending November 30, 1936, all of which were investigated by this department. None of these was fatal:

One of these men worked for a trucking contractor and was employed in trucking leather. He cut his face on a hide and very soon symptoms of anthrax infection appeared and he was treated at once.

The other seven men were employed in tanneries. They all handled raw skins from foreign countries. These establishments are frequently inspected and all maintain excellent first aid rooms with attendants or nurses and part-time doctors. Gloves, aprons and rubber boots are furnished the employees. Posters distributed by this department are put up in every tannery, calling attention to the dangers of anthrax infection, and all the employers use every effort to comply with the regulations of this department for the prevention of this disease.

Pneumoconiosis

There were seven cases of pneumoconiosis investigated during the year. Four of these were fatal. All occurred to men.

Two men were employed at sharpening tools: One was employed at grinding knives on an emery stone and there came from the stone a substance like grit. It was black. This dust settled on his clothes and his nose was full of it. He had to blow his nose every little while. He then started to feel a pain in his chest and coughed. One day he collapsed at his bench. This was the last day he worked. He entered a hospital a few days later, where he remained for three months. The hospital diagnosis was given as pneumoconiosis. After leaving the hospital he stayed at home until he died eight months later.

The other man was employed grinding edge tools for four years. He became ill and had X-rays taken at a hospital. These showed pneumoconiosis. His attending physician reported that for the past ten years there were coarse rales in his chest and that he had a chronic cough.

Two men worked for coal companies: One worked for 44 years as a truckman and yard foreman and suffered pneumonia due to inhalation of coal dust. He was taken sick on a Monday and died Friday of the same week. The doctor who performed the autopsy said that there was coal dust in his lungs and that this was the predisposing cause of death.

The other man was engaged in the occupation of unloading, sifting and bagging coal and coke for 23 years. He was exposed to coal dust and when he became ill he was examined by an insurance physician and X-rays were taken. A final diagnosis of pneumoconiosis was made and compensation was paid.

After fifteen years' employment in the wire-drawing department of a steel mill, a man became ill and was sent to the hospital, where a diagnosis of pneumoconiosis was made. The dust of the room was analyzed and found to contain graphite, stearite of zinc and powdered soap.

A man employed buffing rubber soles on a buffing machine inhaled much rubber dust as his work created large quantities of this dust.

Another man worked in a very old mill, where dirty rags were sorted in a rag picker machine which removed the dust from the rags. The material was later put through a chopper and was blown under pressure to the carding machines. The place was very dusty, poorly ventilated and damp. This man worked here about ten years. His throat swelled and he coughed up a quantity of black substance. He was treated by a doctor and X-rayed. The latter showed the inhalation of much dust. An inspection of this plant resulted in the issuance of orders to the concern to comply with the statutory requirements to safeguard the health of the employees.

Silicosis

There were 4 silicosis cases investigated during the year. They all occurred to men and two of them were fatal.

A man worked as a machine moulder for eighteen years in a dirty and poorly ventilated foundry. Sand was used in this work and he inhaled a great deal of it. After an inspection here, the foundry was cleaned and better ventilated and a better dust control system was installed.

Another man employed in a foundry for about ten years began by tumbling barrels and later in connection with a sandblaster in a supervisory way. He was admitted to a sanatorium, with a diagnosis of silicosis, and died one year later. This establishment is very well ventilated and respirators are provided and used.

The two other men worked as sandblasters: One inhaled a great deal of silica dust, although the exhaust system and respirator he last used were found to be in satisfactory condition.

The other sandblaster suffered for about three years and then died. Diagnosis was given as silicosis. This man was furnished with a respirator and all equipment was inspected daily. The workroom was well ventilated, but at times more or less dust was visible.

Asbestosis

Two cases of asbestosis were investigated during the year: One occurred to a man and the other to a woman. The latter case was fatal.

This woman worked as a weaver for fifteen years. The asbestos material was used in the manufacture of brake linings. She was taken ill and the plant closed

down shortly after the onset of the disease. Eight years later (this year) she died. The medical examiner's report stated "inhalation of asbestos dust."

The man was employed as a weaver of asbestos filaments. The loom weaving generated a thick cloud of dust and this man constantly inhaled it. His mouth, nose and throat were always filled with this coarse dust. He worked without protection for many years and then the moist method of weaving was introduced into this industry. This method is not so hazardous.

Anaemia

There were 3 cases of anaemia investigated by this department during the year. Two were caused by benzol and one by naphtha. Two cases were fatal.

One of the benzol cases, the fatal case, was that of a man employed in a tannery for thirteen years. He worked around a tank of liquid with a 55% benzol content. The firm uses about 1,400 to 1,500 gallons of benzol in an ordinary week. In 1933, upon physical examination, this man's blood count was found to be 89% haemoglobin. Soon after he began to lose weight and appeared anaemic. In 1935, his blood count dropped to 52 haemoglobin. He died in January of 1936 and the cause of death was given as primary anaemia (benzol poisoning).

The other was employed as a treer in a shoe factory and was exposed to benzol fumes from a liquid cleaner that he used in his work.

Another employee worked in a shoe factory, cleaning shoe soles by using naphtha. He was stricken with a hemorrhage and after four days went to a hospital, where he died two weeks later. The hospital report gives the cause of his death as aplastic anaemia, due to industrial origin.

SANITARY SURVEY OF PRINTING ESTABLISHMENTS

At the 51st Annual Convention of the Massachusetts State Federation of Labor, held August 3 to 7, 1936, inclusive, at New Bedford, this resolution was adopted on newspaper plants:

"Whereas, the good health and even the privilege of continued ability to work of many printing trade workers is dependent on clean, sanitary conditions in newspaper and printing plants, and

"Whereas, owing to the insanitary conditions now existent in those plants where printing trades workers are employed, the continued good health of the workers is jeopardized, and

"Whereas, these insanitary conditions can only be corrected by state action, further

"Be It Resolved that we, the Massachusetts State Federation of Labor in annual convention assembled respectfully request the Department of Labor and Industries to make forthwith a thorough investigation of the insanitary conditions now existing in the newspaper and other printing plants in our state."

In compliance with this request, a careful study of the printing trades in 243 establishments was carried on during the year. In these places 11,541 persons were employed, 8,930 of whom were males and 2,611 females. There were eight boys found to be fourteen to sixteen years of age, and seventy-five from the ages of sixteen to eighteen, and 263 from the ages of eighteen to twenty-one. There were 26 females from the ages of sixteen to eighteen, and 193 from eighteen to twenty-one years of age. There were 117 of these establishments located in modern buildings, while 126 were classified as being in old ones. Many newspaper plants are now favorably located in modern buildings of substantial brick and wood construction. As classified by the standards of sanitation, 167 could be recorded as clean, 68 fairly well kept and 8 wholly insanitary and dirty.

Conditions in the printing trade require special supervision and control of fumes from heated lead, oil, lacquer, chromic acid, methanol, benzol, muriatic acid, nitric acid, acetic acid, illuminating gas, gasoline, benzine, amyl acetate and chloride of iron. For the control of these fumes, tanks are provided with exhaust systems, hoods, fans and local equipment. Natural ventilation is usually provided in addition.

Dust is occasionally caused from lead, and, in the engraving department, from etching powder (dragon's blood), wood, graphite magnesium, aluminum, bronze

powder and embossograph compound. Control was provided by the use of shields, goggles and other devices, together with natural ventilation.

The old type linotype machines are heated by gas, and here there is a hazard from carbon monoxide. This is taken care of by means of mechanical ventilation, and, where it is deemed sufficient, by natural ventilation. All the newer type linotype machines are electrically heated, and the carbon monoxide danger is done away with.

Chemicals are used mostly in the engraving department and include acetic acid, denatured alcohol, wood alcohol, aluminum, aniline, asphaltum, acetone, benzene, collodion, copper sulphate, cyanide of sodium, chloroform, carbolic acid, carbon disulphide, corrosive sublimate, caustic soda, duco, alon, ether, formaldehyde, gamboge, gasoline, hydro quinine, hydrochloric acid, iodine, iodine potassium, iron sulphate, lead nitrate, lactic acid, lacquer, magnesium, metol, bichloride of mercury, potassium nitrate, phosphate of soda, phosphoric acid, potassium bromide, silver nitrate, sulphuric acid, sodium hyposulphate, sodium sulphite, toluol, and washing soda. In the use of these chemicals, artificial ventilation by means of exhaust system was supplied. The greater part of these substances, however, were used in small quantities, and personal care is necessary on the part of the employee with regard to their use.

Solvents used include gasoline, kerosene, benzol, sylol, carbon disulphide, amyl acetate, carbon tetrachloride, denatured alcohol, turpentine, ether and benzene.

Of the establishments visited, 112 employed less than ten persons each; 126 gave work to from ten to one hundred persons; five employed one hundred or more. The few boys found in these places were employed as messengers. More than one-half of the minor girls worked other than in the mechanical department of the plants. Of the total number employed, there were found 248 male minors between the ages of eighteen and twenty-one in the mechanical department.

Clean cloths were used by all for the cleaning of machines.

The results achieved in this investigation of printing establishments are visualized in the orders issued by the department in dealing with conditions important to the health of the employees. These are given below:

For better lighting facilities, 3. These included the installation of new shades and greater intensity of light; dealing with washing and toilet facilities, 11, including 9 for cleaning and repairing toilets.

With regard to ventilation and the removal of dust and fumes, 18 orders were issued. In three concerns, melting pots had to be hooded and ventilated; 1 linotype-caster hooded and ventilated; 5 called for the repair of linotype ventilating systems; 4 to provide ventilation to benzol vats, sinks and containers; 5 requiring the repair of exhaust ventilating systems.

For first aid room and medical chest, 17 were issued, 16 of which required refilling of the chest; 1 called for a new first aid room.

In five places the common drinking cup was found, and orders were issued to discontinue them.

In the safeguarding of dangerous machinery, 31 notices were issued to employers, 4 of these pertaining to the cleaning and repairing of floors.

Unguarded openings were discovered in 2; free egress from the plant not maintained, 1.

In recent years the trend to better conditions is noticeable in the direction of a greater interest for maintaining conditions in the plants which are closely related to the health and well-being of the employees. This is the opinion expressed by the inspectors who conducted the work of this survey.

Printing includes a series of exacting processes where normal vision and good lighting are essential for typesetting and other mechanical operations. Interiors of crowded shops require more or less constant use of artificial illumination, and walls and ceilings are frequently whitened to increase the light diffusion. Well-shaded lamps are required over cabinets, racks and working areas to furnish suitable lighting facilities. In the setup of machinery, linotypes are usually placed near the windows as are engraving and finishing tables. Eye strain is lessened by good general and uniform lighting.

The inspection of these plants included a careful checkup of the lighting facilities and the ventilating equipment in the stereotyping and electrotyping departments.

The melting of stereotype scrap and the burning off of dross or surface film of lead oxide frequently generates much smoke and fumes, and electrotyping processes in which copper sulphate and sulphuric acid are used also call for the removal of fumes and gases. It is through this system that the statutory requirements for the protection of the employees are enforced by the police power of the state. The attitude of employers was found to be co-operative to compliance with the requirements in these establishments.

STRUCTURAL PAINTING

During the year 970 painters submitted to examination to qualify as a painter's rigger. Of this number, 876 passed successfully and each was given a rigger's certificate, while 94 failed to pass. Successful applicants were authorized under the rules to hang stagings or to supervise the building of scaffolds which may be needed in the various operations of structural painting.

There were 3,201 certificates that were first issued in previous years renewed this year. These renewals were in accordance with the new rule that went into effect on December 10, 1935. There were 2,073 certificates of registration of painters' rigging issued. Of these, 405 were original registrations and 1,668 were renewals.

There was a total of \$6,202.50 received in fees for examinations and for the issuance of riggers' and rigging certifications. This amount was forwarded to the treasurer of the commonwealth.

There were 2,817 inspections of structural painting operations made and 674 orders issued which were complied with.

LABORERS' VACATIONS

During the year there were 5 complaints from the cities and towns as to failure in giving vacations to laborers, and prompt action was taken by this department in this connection.

Since the decision of the Supreme Judicial Court on April 30, 1935, there has been a clearer understanding in many of the cities and towns as to the requirements pertaining to the statute enacted in chapter 217 of the Acts of 1914. This decision of the court cleared up many misunderstandings of a statute that has afforded much controversy since the time of its enactment. It is not yet free from all ambiguous difficulties, and there is need for a better statute to deal with this important matter in municipal service. The several amendments to the law which have been added to it in the passing of the years have made it more difficult for the heads of municipal departments to deal satisfactorily with it.

In an effort to clarify and make possible smoother operation of the law, the Commissioner of this department requested an opinion on this statute from the Attorney-General, and his reply thereto is given herewith:

Opinion of the Attorney General

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF THE ATTORNEY GENERAL
Boston, June 2, 1936.

Hon. James T. Moriarty, *Commissioner of Labor and Industries.*

Dear Sir:

In reply to your recent letter relative to vacations of laborers in cities, let me say that the provisions of St. 1914, c. 217, which provided that all laborers regularly employed by cities or towns shall be granted a vacation of not less than two weeks during each year of their employment in cities or towns which accepted the act, were modified by the legislature in Gen. St. 1915, c. 60, which provided that in cities which had accepted said St. 1914, c. 217, the heads of the executive departments might be required to grant such vacations by vote of the city council, approved by the mayor. This act of 1915 in effect amended the act of 1914 so that the acceptance of the latter did not of itself require the granting of such vacations, but provided that they might be required by vote and approval as above set forth. Both acts are now codified in G. L. (Ter. Ed.), c. 41, s. 111.

Accordingly, in the city to which you refer in your letter a vote by the council, approved by the mayor, after acceptance of said St. 1914, c. 217, is essential to a legal requirement for the giving of such vacations by the heads of the municipal departments. This does not mean, however, that having once passed such a vote and having it approved, similar votes are necessary annually thereafter to keep alive the requirement; once such a vote has been passed and approved, a vacation of two weeks must be given each year to any "common laborer, skilled laborer, mechanic or craftsman" employed by such city.

Very truly yours,

(Signed) Paul A. Dever,

Attorney General.

The rights of employees established under the act are shown clearly in another opinion of the Supreme Judicial Court which was filed on October 28, 1936. It is given in full herewith:

Opinion of the Supreme Judicial Court

Jouness De Weerdts vs. City of Springfield

Bernard A. McCann vs. Same.

Hampden. Submitted September 17, 1936. — Opinion filed October 28, 1936.

Present: Rugg, C. J., Crosby, Pierce, Field & Lummus, JJ.

Municipal Corporations, Vacations of laborers. Words, "Regularly employed."

Appeals by the defendant in two actions of contract in the District Court of Springfield from orders by the Appellate Division for the Western District dismissing reports by Davis, J., who found for each plaintiff in the sum of \$33.60.

Crosby, J. These are actions of contract in which the plaintiffs seek to recover certain vacation pay at the rate of \$16.80 per week, under the provisions of G. L. c. 41, s. 111, as amended by St. 1932, c. 109.

The following facts are shown by the record: The plaintiffs were employed by the defendant city as laborers to work on a basis of thirty hours a week for which they were to be paid at the rate of fifty-six cents an hour. They were chosen "under the provisions of the civil service laws, and worked on street projects executed under an agreement between the city and federal government, commonly known as a P. W. A. contract, which provided that all employees engaged on such projects should work thirty hours a week." The plaintiffs were not employees of the federal government, but were employed by the city, paid by the city weekly with municipal funds, and were directly under the control and direction of city officials. The plaintiff De Weerdts worked portions of forty-four weeks during the year following the week ending October 28, 1933, or a total of one thousand two hundred twenty-seven and one half hours. The plaintiff McCann worked portions of forty-eight weeks during the year following the week ending October 28, 1933. On November 3, 1914, the city duly accepted St. 1914, c. 217, relating to vacations of laborers employed by cities and towns. Both plaintiffs were suspended by the superintendent of streets of the defendant city on October 11, 1934, for lack of work under the provisions of the civil service law. Each plaintiff requested of the superintendent of streets and engineering two weeks' vacation with pay, and the superintendent refused to grant the vacation because he did not believe the plaintiffs were legally entitled to it. Thereafter these actions were brought. At the close of the trial certain requests for rulings filed by the defendant were denied, and a finding for the plaintiff was entered in each case in the sum of \$33.60 — the amount claimed. The judge found in each case from the agreed facts that the plaintiff was "regularly employed by the defendant within the provisions contained in G. L. (Ter. Ed.) c. 41, s. 111, as amended by c. 109 of St. 1932; that the plaintiff actually worked for the defendant thirty-two weeks in the aggregate during the preceding twelve months from the time his ser-

vices were suspended" The Appellate Division dismissed the report in each case and the defendant appealed.

The statute under which the plaintiffs seek to recover (G. L. c. 41, s. 111, as amended by St. 1932, c. 109) provides in part as follows: "In any town which has accepted chapter two hundred and seventeen of the acts of nineteen hundred and fourteen, all persons classified as laborers, or doing the work of laborers, regularly employed by such town, shall be granted an annual vacation of not less than two weeks without loss of pay. . . . A person shall be deemed to be regularly employed, within the meaning of this section, if he has actually worked for the city or town for thirty-two weeks in the aggregate during the preceding twelve months, notwithstanding that he has ceased, otherwise than by voluntary withdrawal or dismissal for cause in accordance with law, to be in the employ of such city or town. . . ." It is the contention of the defendant, shown by its requests for rulings, that the words "regularly employed" and "thirty-two weeks in the aggregate" in the statute mean thirty-two full weeks, and not thirty-two part time weeks; that a week under the statute means a forty-eight hour week; and that to be entitled to a vacation the plaintiffs must each have worked the equivalent of thirty-two forty-eight-hour weeks.

We are of opinion that the statute cannot properly be so construed. There is nothing in s. 111, as amended, which defines how many hours a week's work shall consist of under said section, nor does it intimate that the maximum of forty-eight hours of labor per week fixed for city and town laborers by G. L. (Ter. Ed.) c. 149, s. 30, is to be the minimum amount of work per week by which such laborers must qualify for vacations with pay. G. L. (Ter. Ed.) c. 149, s. 30, does not purport to define for all purposes to what a week's work shall consist for such laborers; it merely places a limit upon the number of working hours in such week. It does not state that for purposes of the provisions of other statutes, a week's work must be forty-eight hours and that it may not be less than forty-eight hours. The forty-eight-hour statute has no force or bearing in the determination of the meaning of G. L. c. 41, s. 111, as amended. The words of the statute itself, in view of its evident purpose, must alone be considered to discover the intention of the legislature. The important words of the vacation statute are "regularly employed" and "thirty-two weeks in the aggregate." The words "regularly employed" as thus used mean something of permanence in the employment as distinguished from that which is occasional or temporary.

St. 1920, c. 143, entitled "An Act relative to the vacations of certain municipal employees," provided that "A person shall be deemed to be 'regularly employed' within the meaning of section one of chapter two hundred and seventeen of the acts of nineteen hundred and fourteen . . . provided that he has actually worked for the city or town for thirty-two weeks in the aggregate during the preceding calendar year." This phrase is commonly accepted as the definition of the words used, and means a total of thirty-two weeks work out of the preceding twelve months. Employment by the week for the stated number of weeks in the year is therefore the important requirement of the present statute. Laborers such as the plaintiffs fulfil this requirement. Although they were employed for only thirty hours a week because of special federal provisions with respect to P. W. A. contracts, they were regular employees of the city and their work was by the week. They were employed for thirty-two weeks of thirty hours each out of the preceding twelve months. As regular weekly work for the stated number of weeks alone is present to satisfy the requirements of the statute, the plaintiffs on the facts shown are entitled to the benefit of the statute to the extent of the hours which they worked weekly. Despite the fact that they were permitted to work for only thirty hours a week, they were as much regular laborers within the meaning of the statute as laborers who regularly worked a forty-eight-hour week. Weekly work for the stated period is all that is required for the application of the

statute. There is nothing in the statute which is contrary to this conclusion, or which suggests that its application is limited to laborers who work a forty-eight-hour week.

In each case the entry must be

Order of Appellate Division dismissing report affirmed.

D. M. Macaulay, City Solicitor, & J. S. Bulkley, Assistant City Solicitor,
for the defendant.

C. V. Ryan, Jr., for the plaintiffs.

WEEKLY PAYMENT LAW

There was a total of 2,974 complaints alleging violation of the Weekly Payment Law filed with the department. Much service was given the working people of the state in the administration of this statute. Small amounts were involved and to secure legal assistance would have imposed a burden upon the employee. Practical help was given to the workmen in this service. Special effort is always made to bring relief to those in needy circumstances, and co-operation is usually received in paying the amount due to employees.

There is a system of records retained in the department for this purpose which has been developed through many years of experience. It provides for the entering of information which may be necessary if prosecution takes place. The employer is notified by correspondence of the amount due, and, if payment is not made promptly, demand is made by the special investigator of the division. Personal interviews take place with the complainants in nearly all cases and facts secured indicating where the work was done and the amount of wages due.

Police authorities and court officials, public welfare organizations and other agencies continue to advise the employees, who fail to secure their wages, to avail themselves of the services given by the department. In handling these cases effort is made to prevent loss of working time on the part of the employees.

The sum of \$39,868.14 was paid by employers after this department had acted on the complaints. Hearings were held in the office in 570 cases where disputes existed between the parties.

Complaints of employees of irregularities in connection with the assignment of their wages or alleging that a sum was withheld from their earnings, under the trustee process, larger than the amount provided by law, were among the problems presented in the daily work. In each of these cases the statutory requirements were made known to the employee, and if an error in the procedure under ordinary process was apparent, the employer was notified if it appeared that a violation of the Weekly Payment Law had taken place.

For the year ending November 30, 1936 — 4,665 persons called at the department's office, believing they had cause to complain concerning non-payment of wages.

After hearing their stories, the department allowed 2,974 complaints to be filed, and of this number 1,394 have reported payment in full.

Of the balance, 1,691 complaints not taken by the department, the reason is given as follows:

701 cases of persons making inquiry concerning the law.

498 cases of no jurisdiction.

140 cases outlawed.

77 cases insufficient information necessary for filing complaint.

64 valid setoffs.

71 disputes.

115 contracts.

25 commissions.

Of the 2,974 complaints filed, 27 were filed by persons employed on farms and 118 in private or domestic service.

REPORT OF THE LEGAL DEPARTMENT

Joseph Monette, *Counsel*

There were 601 prosecutions	601 Prosecutions consisted of:
427 Guilty	426 Wages
25 Not guilty	134 Women and minors violations
109 Dismissed	15 Violations of painting rules
33 Defaults	6 Violations of public works
7 Not Prossed	4 Illegal advertising
	12 Lack of prosecution
	1 Violation of first aid
	1 Violation of toilet rules
	2 Violations of drinking water
427 Guilty cases consisted of the following violations:	
289 Wage complaints	3 Illegal advertising
110 Women and minors violations	2 Drinking water violations
15 Painting rules violations	1 Failure to provide first aid
6 Public works violations	1 Toilet rules violations
25 Not guilty findings consisted of the following violations:	
14 Wage complaints	11 Women and minors violations
109 Dismissed cases were as follows:	
83 Wages paid	12 Lack of prosecution
13 Women and minors violations	1 Illegal advertising
33 Defaults:	
33 Wage complaints	
7 Not Prossed:	
7 Wage complaints	

CO-OPERATION WITH THE FEDERAL GOVERNMENT UNDER THE WALSH-HEALEY ACT

This legislation is known as Public Act No. 846 of the 74th Congress, June 30, 1936. It provides —

“that in any contract made and entered into by any executive department, independent establishment or other agency or instrumentality of the United States or by the District of Columbia, or by any corporation all the stock of which is beneficially owned by the United States (all the foregoing being hereinafter designated as agencies of the United States), for the manufacture or furnishing of materials, supplies, articles and equipment in any amount exceeding \$10,000, there shall be included the following representations and stipulations.”

Among these requirements are provisions which have to do with assuring good working conditions and suitable terms of employment, and to this end regulations have been prescribed by the Secretary of Labor under authority contained therein and made a part of the contracts issued. These regulations provide for the minimum of eight hours in any one day and forty hours in any one week unless such person is paid overtime rates as has been set by the Secretary of Labor.

No boy under sixteen years and no girl under eighteen shall be employed in doing any of the work in these projects required by the contract.

No convict labor is permitted in the manufacture or production or furnishing of any materials, supplies, articles or equipment included in the contract, neither shall any part of the contract be performed nor any of the materials, supplies, articles or equipment to be furnished under the contract be manufactured or fabricated in any plants, factories, buildings or surroundings or under working conditions which are insanitary or hazardous or dangerous to the health and safety of the employees engaged in the performance of the contract.

These rules provide that there shall be compliance with the safety, sanitary and factory inspection laws of the state in which the work or any part thereof is to be performed. Penalties are provided for any violation of the provisions.

In urging the co-operation of this department for the enforcement of these contract requirements, the Secretary of Labor at Washington addressed the following communication to the Commissioner of Labor and Industries of Massachusetts:

Department of Labor — Office of the Secretary.
Washington, Nov. 25, 1936.

James T. Moriarty, *Commissioner*,
Department of Labor and Industries,
State House, Boston, Mass.

My dear Mr. Moriarty:

I enclose herewith a list of manufacturers who are performing contracts pursuant to Public Act No. 846, 74th Congress, commonly known as the Walsh-Healey Act. You will note that several of the factories which appear on this list are located in your state. The Department of Labor is interested in obtaining certain information in connection with the activities of these factories in order to assist us in the administration of this law.

Would it be possible for you to institute an investigation for the purpose of supplying us with a special report on the following questions concerning those factories which are situated within your state:

1. Do these factories adhere to the 8-hour day and 40-hour week provisions with an overtime rate of pay of one and one-half times the basic hourly rate or piece rate, in so far as work on government contracts is concerned?
2. Do these factories refrain from employing boys under sixteen years of age and girls under eighteen years of age and convict labor in so far as work on government contracts is concerned? (A temporary exemption has been granted textile factories permitting them to retain in their employ girls between the ages of sixteen and eighteen.)
3. Do these factories comply with the state law in regard to sanitary and safety standards?

For your convenience, I am also enclosing a copy of the Act and a copy of Series A of the regulations issued thereunder on September 14, 1936. To date, no minimum wage standards as provided for in section 1(b) of the Act have been determined. In the event that you find it possible to supply any of the information mentioned above, this department will be extremely grateful.

Sincerely yours,

(Signed) Frances Perkins.

This request from the Secretary of Labor met with the cordial approval of the Commissioner of Labor and Industries and he assigned this work to the Division of Industrial Safety, ordering it to check up conditions in the plants of Massachusetts where the contracts were being fulfilled.

An inspector well qualified in the enforcement of the statutes in respect to sanitation and safeguarding of machinery and who was expert in securing all data relating to prices and wages paid to labor successfully carried on this work. The experience so far indicates that there is an attitude of compliance with the standards required by law of the employers of Massachusetts. The reports of these investigations are filed with the department, but are available for use by the federal government at any time.

A YEAR'S EXPERIENCE WITH THE PREDETERMINED WAGE RATE LAW

Late in October, 1935, this legislation became operative. It was a wide departure from the requirements of the old prevailing rate of wages law, which was declared unconstitutional by the Massachusetts Supreme Court, and set up a new idea in legislation to govern wages and classification of employment in projects concerned with mechanics, teamsters, chauffeurs and laborers in the construction, alteration of or addition to public works. Its requirements increased substantially the administrative work of the division.

The purpose of this statute was to make conditions uniform as the basis for bidding and thus permitting the best relations between contractors and employees in the public interest. The Commissioner is required to prepare for the use of

public officials, who may be called upon to cause construction of public works, a list of the several jobs usually performed on such work by the employees. He may classify such jobs and revise the classification from time to time if it is deemed advisable. Prior to awarding a contract for the construction of public works, either the public official or public body shall submit to the Commissioner of Labor and Industries a list of the jobs upon which employees are to work and he shall furnish a schedule of such rate or rates of wages to the official or public body as soon as his determination has been made. In advertising for bids, the awarding official or body shall incorporate the schedule in the advertisement and shall furnish a copy of the schedule to any person requesting the same. This schedule shall be made a part of the contract for such work and continue to be the minimum rate of wages for the employees during its life.

Any person engaged in the construction of this public work shall cause a legible copy of the schedule to be kept posted in a conspicuous place on the site of the public works during the life of the contract. Whoever pays less than this rate or rates shall forfeit to the Commissioner of Labor and Industries a sum equal to twice the difference between said rate or rates and the wages actually paid to the employees, the same to be recovered by the Commissioner in an action of contract for the benefit of the employees.

It is further provided that whoever for himself or his representative, agent or officer of another shall take or receive for his own use or the use of any other person as a rebate, refund or gratuity, or in any other guise, any part or portion of the rates paid to any employee for work done or service rendered on said public works shall be punished by a fine of not less than one hundred dollars nor more than five hundred dollars or by imprisonment for not more than six months, or both.

An appeal from the rates fixed by the Commissioner is provided for in the statute, and the Associate Commissioners may reclassify the employment and change the rates if they decide to do so within three days after hearing. Every contractor shall furnish the department, upon its request, the register which must be kept of all mechanics and other employees, showing the name, address and occupational classification of each employee on said works, the hours worked by and the wages paid to each such employee. These new provisions of the law were set up in the belief that they would effect a wholesome change in the relationship between employers and employees.

These in general are the outstanding requirement in this legislation. The purpose of the act is to conserve and protect the appropriation of public money in the interests of the public good. Again, it was intended to safeguard against losses from the public treasury which might accrue under circumstances where the bidding for the contract was not based entirely upon the most careful judgment. Finally, it was urged to adopt this statute for the stabilizing of relations between employee and contractor, public official and bidder, in the sound belief that it would be for the welfare of the public. The new law has shown itself to have operated to the best interests of all concerned. It has eliminated labor controversies between employers and workmen and has done much to preserve industrial peace. It has also accomplished much in promoting respect for the maintenance of contract relations between the various interested groups.

The following comments are adduced for the purpose of indicating what has been accomplished in the administration of labor laws with respect to this work:

It is worthy of note that in 1,522 projects there were but three appeals from the wage rates, and in only one was a reduction made from the wage rate established by the decision of the Commissioner. Numerous conferences were held during the year with groups representing the building contractors, the Marine Chapter and the labor organizations. At these conferences the question was discussed at great length.

After the establishment of the original classification of wage rates, 205 requests were received for additional classification, due either to a change in the method or type of construction to be used on these projects. It was necessary to revise the wage rates on twenty projects during the year. Many of the changes in the wage rates were brought about by mutual agreements between employer and employee organizations which became operative after the first wage rate was submitted, but prior to the advertising for bids.

There was a total of 2,550 inspections made pursuant to the requirements of the law, and one of the results of the work of these inspections was the recovery for the employees engaged in these projects of approximately \$2,000 from contractors who failed to pay the rate of wages that was established by the Commissioner of Labor and Industries for their service. This indicates the care with which the public funds contributed for this work were conserved through the direction of close supervision. The estimated appropriations of 566 of these 1,522 projects was \$66,812,415.14, and included projects from the Department of Public Works, the Department of Mental Diseases and the Metropolitan District Commission. There were also some projects in which the United States Navy figured in construction work in connection with which co-operation was given by this department.

SUSPENSION OF THE 6 O'CLOCK LAW IN THE TEXTILE INDUSTRY

The legislature of 1936 followed the practice of three previous years in suspending the provisions of section 59, chapter 149 of the General Laws, which prohibited the employment of women over twenty-one years of age in the manufacture of textile goods after 6 o'clock in the evening.

The Commissioner of Labor and Industries, according to the statute, was given power to make restrictions on the employment of women in night work in conformity with Article 20 of part the first of the Constitution of the Commonwealth. This mandate of the legislature was complied with by the Commissioner, who, in accordance with chapter 154 of the acts of 1936, drafted rules and regulations for the textile industry which were applicable to the cotton, wool and silk branches of the trade.

On May 19, 1936, rules applying to the cotton industry were adopted and issued.

On May 20, 1936, regulations applying to the wool textile industry and on May 23, 1936, those applying to the silk textile industry were issued by the Commissioner of Labor and Industries. On general principles, with the exception of slight differences as to the ratio of women employed at night, the provisions are identical. One of the inspection problems in connection with the enforcement of this law is that which has to do with girls under 21 years of age who may not work even with this suspension after 6 o'clock in the evening and whose employment is still controlled by section 66 of chapter 149 of the General Laws which was not included in the right to suspend the law.

In checking up compliance with these provisions during the peak season in the trade, the inspection staff visited establishments in the evening, noting the number of women employed as against the number of men and giving special attention to the provisions for the lunch period of 45 minutes as required by statute on the afternoon and evening shift. On the first inspection it was found that in 23 establishments no women were employed on the night shift. In 144 mills, 5,140 women and 14,903 men were employed on the night shift. In the day shifts, 26,206 women and 28,303 men were employed.

The regulations appealed to the officers of the concerns operating a shift in which women are employed after 6 P. M. to employ in this shift the minimum number of women consistent with efficient operations of their plants. There were many gratifying indications of co-operation given in this connection. Some difficulty was encountered in regard to traditional rulings of the NRA with respect to definitions made in reference to regulating the hours of labor on the third shift of productive machinery. Some of these employers were invited to confer with the Commissioner of Labor and Industries on the matter of instructions as to the employment of two shifts of 40 hours each, and in practically all of these instances the attitude of the Commissioner in the interests of protecting the textile industry, including employees as well as employers through the means of maintaining two shifts of work, was commended on the grounds that such stabilizing was necessary to the very life of the industry.

On July 9, 1936, the woolen manufacturers of Massachusetts were invited to attend a conference in the state house in which these questions were considered at length. At this time the Commissioner made known to them the leading reasons for the need of the industry for stabilizing upon the two 40-hour shift basis. While it was claimed by those present that they complied with all these recommendations so far as productive machinery as defined by the NRA was concerned, they showed

a spirit of co-operation for the two 40-hour shifts as being the plan necessary to safeguard the future of the industry. Representatives were present from North Oxford, West Medway, Fall River, Lawrence, Millbury, Pepperell, Uxbridge, Dudley, Lowell, Worcester, East Douglas, Andover, New Bedford and Whitinsville.

WORK OF BRANCH OFFICES

The work of the branch offices continued to function well in Fall River, Lawrence, Pittsfield, Springfield and Worcester. These places are available to the public during the regular working hours. Here may be secured the various schedules and time notices for women and minors as required by law; bulletins containing rules and regulations for safeguarding machinery and in relation to toilet and washing facilities; foundry requirements; industrial lighting; building operations and structural painting and other provisions enforced by the department.

Complaints alleging violation of the Weekly Payment Law are received and given prompt attention, and conferences are arranged between workmen and employers when disputes arise as to the amount due and are settled to the satisfaction of the interested parties. The correct procedure is explained to complainants in connection with court action when it is necessary.

Telephone calls from industrial establishments for information provide the opportunity for the branch office to give prompt service on important matters.

Problems concerning the work of women and minors and the certification of employed children, the provisions concerning one day's rest in seven and Sunday employment and other requirements of the labor laws come to the attention of the office and prompt attention is given the public.

NEW DUTIES ASSIGNED BY THE LEGISLATURE OF 1936

Several labor measures adopted during the legislative session for 1936 either strengthened the existing laws or extended them to new places of employment. Brief reference is made herewith to these enactments which will indicate the nature and purpose of these added administrative duties:

Chapter 78: An Act amending the definition of mercantile establishments as provided in section 1 of chapter 149 of the General Laws. This new law provides that any premises used in connection with the service of cleansing, dyeing, laundry or pressing fabrics or wearing apparel is defined to be a mercantile establishment. It should be noted that this law applies specifically to premises used for places where articles of clothing are received for the purpose of dyeing, cleansing, laundering or pressing them. Such establishments were not included within the scope of the labor laws until this amendment was made.

Chapter 154: An Act authorizing the Commissioner of Labor and Industries to suspend until April 1, 1937, the 6 o'clock law, so-called, relating to the hours of employment of women in the textile industry. Comment on this amendment is made on a previous page.

Chapter 160: An Act by which the Weekly Payment Law is not to apply to an employee of a hospital which is supported in part by contributions from the commonwealth or from any city or town, nor to an employee of an incorporated hospital which provides treatment for patients free of charge or which is conducted as a public charity, unless such employee requests such hospital to pay him weekly.

Chapter 180: An Act relative to the observance of Columbus Day. By this provision Columbus Day is made a legal holiday, and all laws, statutes, orders and regulations regulating the keeping open of retail stores on the Lord's Day shall be applicable to the keeping open of retail stores on October 12 between the hours of 7 o'clock A. M. and 1 o'clock P. M.

Chapter 242: An Act penalizing officials of the municipalities who refuse to grant vacations to certain municipal employees as provided by law. By this new statute any official of a city or town whose duty it is to grant a vacation as provided by this section and who wilfully refuses to grant the same shall be punished by a fine of not more than one hundred dollars.

Chapter 367: An Act establishing a six-day week, so-called, for certain public employees and persons employed on public works. By this enactment the service of all laborers, workmen and mechanics now or hereafter employed by the common-

wealth is restricted not only to 8 hours in any one day or 48 hours in any one week, but also to six days in one week.

Chapter 28: A Resolve providing for an investigation by the Department of Labor and Industries relative to the employment of minors between the ages of sixteen and eighteen. This provided as follows:

"Resolved: That the Department of Labor and Industries shall investigate the question of what trades, processes of manufacture and occupations and particular methods of carrying on the same, from which minors under the age of sixteen are now excluded by law, so dangerous or so injurious to the health of minors between the ages of sixteen and eighteen that such minors ought also to be excluded therefrom. Said department may expend for the purposes of this Resolve such sum, not exceeding \$1,000, as may hereafter be appropriated therefor, and said department shall report to the General Court its findings and recommendations, with drafts of legislation necessary to carry its recommendations into effect, by filing the same with the Clerk of the House of Representatives not later than the first Wednesday of December in the current year.

Chapter 170: An Act extending the provisions of the 10 o'clock closing law to women and girls in mechanical and certain manufacturing establishments. This law provides for new restrictions upon the hours of labor women may be employed in mechanical establishments, including laundries. Heretofore there has been no restriction as to the hours of the day or night women over twenty-one years of age could be employed in laundries, but with this new legislation such employees may work under precisely the same restrictions that are imposed upon women employed in manufacturing.

REPORT OF THE BOARD OF CONCILIATION AND ARBITRATION

THOMAS F. CURLEY, *Chairman*; RAYMOND V. McNAMARA, JOHN L. CAMPOS

On December 1, 1935, two joint applications for arbitration were pending. During the year 118 joint applications were filed, making a total of 120. Of these twelve were abandoned, withdrawn or settled; decisions were rendered in 103 cases, also one supplemental decision; five cases are now pending. Four petitions for certificates of normality were filed and four certificates were issued.

CONCILIATION

The attention of the Board has been directed during the past year to effecting settlements of industrial disputes through the medium of conciliation before strikes actually take place. In its efforts it has been highly successful, for through the good offices of the Board approximately 25,000 employees were kept at work in the commonwealth and strikes avoided in over 105 instances. Our ability to avoid a cessation of work and to continue uninterrupted production has amounted to a considerable saving to the employees in wages and has prevented an enormous loss to industry. The earnings of the employees in most lines of industrial and other employment are still at a low level through reduced rates and part time employment. Considerable unrest naturally exists among the employees, occasioning a most restive feeling on their part, calling for increased wages and changes in working conditions and hours of employment. If industrial peace is to be maintained, this situation must not be ignored by those in charge of industry. The upturn in business, accompanied by an anticipation of further improvement, has aroused the hopes of the employees in many lines of industry to attempt to recover reductions previously made in wage rates and hours of employment. The Board has been alert in contacting employer and employee representatives and engaging them in conferences as soon as information has reached us of industrial disputes. The conciliatory efforts of this Board have resulted in the avoidance of any serious strike in the commonwealth during the year.

The confidence which employers and employees have in the Board is evidenced by the fact that practically all lines of industry have availed themselves of the good offices of the Board during the past year, and to such an extent that the work of

the Board has increased so that it has been obliged to devote its full time to the settling of labor controversies and the arbitration of industrial disputes.

The Board has been active in its attempts to prevent the removal of industries from Massachusetts to neighboring states and has in many instances accomplished very gratifying results. The threatened removal to New York state of the Gold Seal Shoe Corporation of Lynn, employing some 500 employees, was avoided, partially at least, through the efforts of this Board, acting in conjunction with the Commissioner of Labor and Industries, James T. Moriarty. The result of our efforts in this one instance was most helpful and prevented the removal of this concern to New York state, thus reassuring the employees of their jobs and saving the commonwealth one of its most important industrial units. This activity of the Board, while not strictly within the jurisdiction of this commission, as outlined in chapter 150, sections 1 to 10, nevertheless is of such great importance that it has concerned itself when it had knowledge of such removal.

The development of our industrial life in the commonwealth, however, depends not only upon the retention and upbuilding of our present industries, but also on the acquisition of new units from outside the borders of our state who seek new fields of operation. The attention of the Board was recently attracted to the interest being shown by the owners of a large hat factory in New Jersey who desired to expand their business. The parties were contacted, the advantages of locating in Massachusetts presented to them, and, as a result of the Board's activity, this company is now in operation in Bradford, employing some 400 operators and bringing into that community an annual payroll of approximately \$400,000. This important work, embracing as it does the upbuilding of our industrial life, should receive the immediate consideration of those in authority. Funds should be allocated either to this department or some other agency of the state government with authority to develop and enlarge upon this activity so important to our industrial life. The commonwealth has during the past year appropriated the sum of \$150,000 to advertise its recreational advantages. We urge an appropriation to advertise and promote the industrial advantages of Massachusetts. It is incumbent upon the state to give immediate concern to the establishment of such an agency as proposed in this report in order that we may retain our industrial supremacy.

Paul Whitin Manufacturing Company, Northbridge. A serious labor trouble, resulting in the strike of approximately one thousand employees of the Paul Whitin Manufacturing Company, occurred on January 14, necessitating the closing of the mill. Federal conciliators were invited in by the representatives of the United Textile Workers of America to adjust the differences and for a period of weeks conducted negotiations, but with no apparent success. On the morning of January 24, while these negotiations were going on, a riot occurred at the plant of the company as the result of the attempt of seven workers, office helpers and overseers of the plant, to load two cars with merchandise valued at \$15,000. The employees so engaged were set upon by the strikers, who immediately proceeded to unload the cars. In the afternoon the loyal employees again attempted to load the cars and the strikers, some one thousand strong, seized the fire hose and played it upon the police, railroad officers and the merchandise. Tear gas bombs and clubs were freely used with but little success. Darkness ended the day of violence, at which time state police were requested. Acting upon orders from the governor of the commonwealth, Commissioners McNamara and Campos and Agent Knight proceeded to Northbridge on the following day, for the purpose of attempting a settlement. As a result of that visit the commissioners recommended to the union that mass picketing cease while the Board was endeavoring to conciliate. A mass meeting was hurriedly called and the Board's recommendation was accepted.

At a conference of parties held on March 7 the following demands of the union were freely discussed:

- a. 10% increase in wages.
- b. Taking the cleaning from the spindles down.
- c. \$14 a week for 40 hours for loom cleaners.
- d. Loomfixers to receive more wages and reduction in work load.
- e. No discrimination on account of union activities.

After a day of hearing evidence pro and con relative to the dispute and the disorder attending it, the Board finally made the following recommendations to both

parties, to be in turn submitted to the directors of the company and to the mass meeting of the employees:

1. The strike to be officially declared off and the strikers to return to work as business conditions warrant.
2. There shall be no discrimination of any sort against any employee on account of union activities, the company agreeing to observe the provisions of the Connery-Wagner Act and to comply with and observe all constitutional, local, state and federal laws concerning labor.
3. It is agreed to submit the determination of the controversy regarding cleaning by spinners to an arbitration board consisting of Joel Barnes, selected by the employer, and Edward F. Doolan, selected by the employees, and if these two cannot agree, John L. Campos, labor member of the State Board of Conciliation and Arbitration, is to make the final decision. This arbitration board is to make a study of the entire spinning department on conditions, work load and wages. It is further agreed that pending this study the spinners shall resume work as formerly. It is further agreed that just as soon as new stock has begun to be worked this study shall be made and a determination rendered, the decision of this arbitration board to be final and binding upon both parties.
4. It is agreed, with reference to loom cleaners, that the minimum wage shall be \$13 for a 40-hour week, and that in any weeks in which less than 40 hours are worked, the wage rate shall be proportional. It is further agreed that in no case shall there be an increase in the work load above the present maximum. It is further agreed that the loom cleaners shall work alternate weeks until the company is operating at normal production.
5. It is agreed that the minimum pay in this mill shall be \$13 for a 40-hour week, and that in any weeks in which less than 40 hours are worked, the wage rate shall be proportional.
6. The company agrees that the loomfixers shall receive assistance when the work assigned becomes too burdensome to handle alone.
7. This agreement to be binding upon both parties until April 1, 1937, it being agreed that in the event that either party desires to cancel the agreement on that date, a 30-day notice shall be given by registered mail by the party so desiring to the other party and to the State Board of Conciliation and Arbitration. In the event that such notice is not sent by either party, it is understood that this agreement shall be in full force and effect for another year. In the event that there is any misunderstanding or controversy as to the intent of any article of this agreement, it is agreed that the matter shall be submitted to the State Board of Conciliation and Arbitration for interpretation.
8. The signatories to this agreement, made before the State Board of Conciliation and Arbitration, further agree to present it immediately to their respective bodies; namely, Local No. 2332 of the United Textile Workers of America and the directors of the Whitin Mill, and to recommend that that the same be accepted.
9. There shall be no strikes or lockouts during the life of this contract.
10. It is agreed by the company that they will deal with such representatives of the employees as the employees shall designate for the purpose of collective bargaining.

In the recommendations, under Article 3, a rather unique and extraordinary agreement was entered into, with the sanction of the company and the union, whereby the labor representative on the Board was to be the final arbiter in the determination and the proper allocation of the work load, working conditions and wages in the spinning department. These recommendations were officially accepted by the union and the company on March 9 and the strike officially called off. Its success in bringing both parties into agreement after weeks of rioting and bitter disagreements was a source of much satisfaction to the Board.

Garment Industry, Boston and Vicinity. On February 18 the Board received notification from the Joint Board of Cloak and Dressmakers' Union of the International Ladies' Garment Workers' Union, advising them that the agreement between the union and the manufacturers expired as of February 15 and had not been renewed and calling the Board's attention to the seriousness of the situation.

Under date of February 21 the Board sent notices to the interested parties of a conference to be held at its office on February 25, at which conference it was disclosed that in a 10-year period there had been six general strikes in the garment industry in the city of Boston; that sales had decreased from a value of \$30,000,000 to \$10,000,000 in the Boston area, due to the migration of the industry from that section as a result of labor disturbances. The union stated it was their desire to stabilize wages, hours and conditions of employment in the city of Boston, to conform with the situation existing in other localities under contract with their union.

The questions of wages and the closed shop were the main subjects under discussion, the manufacturers' position being that they were ready to discuss wages, hours and conditions of employment, but would not discuss the question of a closed shop. This conference adjourned without a settlement having been reached. Following this conference, the Board was advised that a meeting of the union was to be held that night, at which a general strike vote was to be taken. With this information, the Board contacted the responsible parties in the union and succeeded in averting the strike. A further conference was arranged for February 26 and at this conference the union was prepared to sit down and make an agreement with the manufacturers, but the manufacturers again refused to sit down and discuss any agreement calling for a closed shop.

On February 27 a general strike was called in the garment industry. Under date of February 29 the Board received a telegram, advising them that the Associated Dress Manufacturers of Boston, Inc., at a meeting held that day had unanimously agreed that they were ready and willing to confer with the International Ladies' Garment Workers' Union for the purpose of entering into contractual relations with them. It would appear from information which the Board received that the union had refused to deal with this particular group separate and distinct but had insisted if any agreement was to be made, it would have to be made for the whole industry.

On March 22 the Board requested His Excellency the Governor to aid and assist them in bringing this matter to a conclusion. The governor arranged for a conference to be held at his office on Saturday, the 29th, at 11 A. M., and on that date the Board met with the governor, a committee from the union and a committee of the manufacturers, together with the Commissioner of Labor and Industries, James T. Moriarty, and at that meeting the governor suggested that the employees return to work immediately and both groups sit with the State Board of Conciliation and Arbitration to see what could be agreed upon in the matters in dispute and what could not be agreed upon should be submitted to the State Board for arbitration, with a final appeal to him. This had the sanction of the employers' group. Mr. Kramer, business manager of the International Ladies' Garment Workers' Union, replied that they had no intention of doing away with the union and if the governor's recommendation was accepted, it would have that effect. The governor then suggested that the Board proceed immediately to the Parker House and continue the conference in an endeavor to conciliate the differences, suggesting that a committee of five be appointed from each side.

The Board met with the committee so appointed at the Parker House and as a result of this conference informally recommended that the union and manufacturers sign a three-party agreement with the State Board of Conciliation and Arbitration; that is, whatever might be agreed upon in the matter of wages and conditions would be signed by both parties and the Board and left with the Board. Such an agreement would apparently overcome the manufacturers' objections to signing an agreement directly with the union. This was acceptable to the employees' group and they were prepared to recommend its acceptance at their mass meetings, but the employers' group, however, refused to enter into any such contract, despite the urgings of the Board. This conference persisted until 11 o'clock at night when a postponement was taken until Monday at the State House, both parties agreeing to prepare statements as to how far they were willing to go to settle the dispute. This meeting was held on March 24 and it was apparent to the Board, as a result of the statements made, that neither side had receded from its former position.

Action in the courts had been taken by fourteen manufacturers of cotton dresses and underwear, who had brought suit against the Joint Board of Cloak and Dress-makers' Union, affiliated with the International Ladies' Garment Workers' Union.

This action was brought before Mr. Justice Thomas J. Hammond sitting in the Superior Court for Suffolk County, and on Saturday, March 21, entered the following decree in each of the fourteen cases of cotton dress and underwear manufacturers:

"This case came on to be further heard at this sitting and was argued by counsel, and thereupon, upon consideration thereof, and agreement of counsel, it is ORDERED, ADJUDGED AND DECREED as follows:—

- "1. The respondents and each of them, and their respective officers, agents, servants and attorneys, shall forthwith discontinue and terminate the strike now in progress against and affecting the complainant.
- "2. The respondents and each of them, and their respective officers, agents, servants and attorneys, shall no longer continue to interfere with the complainant's employees and their employment.
- "3. The respondents and each of them, and their respective officers, agents, servants and attorneys, shall cease and no longer continue to picket the complainant's premises.
- "4. The respondents and each of them, and their respective officers, agents, servants and attorneys, shall cease from persuading the complainant's employees for the purpose of inducing them, or any of them, to leave their employment with the complainant.
- "5. The complainant shall not discriminate against any of its employees who went out on strike, and shall reemploy all of said employees.
- "6. The complainant shall not interfere with any of its employees who desire to affiliate with the International Ladies' Garment Workers' Union.
- "7. The complainant shall distribute all work equally among its employees during slack periods.
- "8. The complainant shall maintain a minimum wage of Thirteen Dollars (\$13.00) per week on the basis of a forty (40) hour working week.
- "9. The complainant shall maintain a forty (40) hour week for its employees and shall submit to arbitration by the State Board of Conciliation and Arbitration all controversies involving the hours of labor, wages, overtime rates, and working conditions of its employees, which may arise between it and its employees; and shall abide by and conform with all final decisions of the State Board of Conciliation and Arbitration in all matters involving the hours of labor, wages, overtime rates, and working conditions of the complainant's employees."

The decree of Justice Hammond imposed upon this Board the power to settle all controversies involving hours of labor, wages, overtime rates and working conditions of the employees and as a result of his decree the strike was officially ended. Following the decree, however, the Board met with various groups in the industry and on March 23 the manufacturers and the union signed an agreement before the State Board of Conciliation and Arbitration, covering a two year period and establishing the wages, hours and working conditions which are to obtain in the industry.

Both sides expressed their thanks to the Board for its interest and helpfulness in the solution of this strike and the Board for the first time took under its jurisdiction the keeping of peace in this industry. There have been no strikes, disturbances or lockouts since the signing of the agreement.

Tanning Industry. For the past three years the Board has been specifically recognized as the agency for the arbitration of the industrial disputes in the agreement entered into between the manufacturers in the tanning industry and their employees, members of the National Leather Workers' Association, doing business in the cities of Peabody, Salem, Lynn, Woburn and Norwood and employing approximately eight thousand leather workers. This agreement has been renewed for the year 1937 and again designates the Board as the agency for arbitration and the enforcement of other important provisions relative to employment. The Board has been able to adjust all controversies during the year without a semblance of a labor disturbance among those covered by this agreement.

A most unusual case attracted the attention of the Board during the month of March. As a result of the flood waters of the Merrimack River inundating the building occupied by the Hamel Leather Company of Haverhill, over a million dollars' worth of hides in storage were threatened with ruin unless they could be immediately processed. Arrangements were made by the company to have these

hides processed in Salem, Lynn and Peabody tanneries, but upon the arrival of the hides, the employees in those tanneries refused to work upon them and threatened to strike the plants if any attempts were made by the companies to salvage them. This action on the employees' part was precipitated by reason of the fact that in 1933 the Hamel Leather Company had refused to recognize the union and had secured an injunction from the courts restraining the union from picketing or interfering with the operation of the company's plant. Appeals were made by the company to the governor and the attorney general, pointing out to them the emergency and the loss of over a million dollars' worth of hides if these skins were not immediately processed. The Board was called into the situation and immediately made recommendations for the salvaging of the hides, which were later approved by both sides; also, an agreement made to arbitrate the alleged refusal of the company to reemploy certain employees who had been active in the picket line after the strike of 1933. The settlement of this controversy in all probability prevented a general labor disturbance in the tanning industry and averted what would have occasioned an enormous loss to the manufacturer.

Boston Woven Hose and Rubber Company, Cambridge. Under date of June 23 the Board was notified of a contemplated strike, to be called June 24, at the Boston Woven Hose and Rubber Company in Cambridge. The Board immediately contacted the representatives of the company and the employees, members of the United Rubber Workers of America, Local No. 25. They advised the Board that the strike had been called at 12 o'clock noon, whereupon the Board arranged a conference, to be held at its office, on June 25, at which conference it was disclosed that the union, representing some 900 employees, had made certain demands upon the company and that both sides had engaged in conferences over a two-week period in an endeavor to adjust their differences. The demands presented were as follows:

1. The Badeaux system on 100% bonus without a reduction in the present base rates.
2. 10% wage increase.
3. A week's vacation with pay to those in the employ of the company for over one year.

The contention of the employees was that since the introduction of the Badeaux system on March 15, 1930, there had been a reduction in the earnings of the employees. They further claimed that the employees received a rate of 45 cents an hour for a 40-hour week, while the company contended that 45 cents an hour was only the minimum and the average wage of the employees in this factory was 60 cents an hour. The union further maintained that the average weekly wage was \$18 and the company stated that the average weekly wage was \$24. It was brought out in the testimony that the annual payroll of this company amounted to \$900,000 and that it gave employment to approximately 900 employees. This company is engaged in the manufacture of mechanical rubber goods, hose, tape, belts, etc. After a lengthy conference the Board made the following recommendations:

1. All male employees receiving 37 cents an hour or less shall receive not less than 43 cents an hour.
2. Time and one-half shall be paid for all overtime work over and above 40 hours a week.
3. Female employees employed by the company shall receive a minimum of not less than 35 cents an hour.
4. When the union presents a complaint relative to any individual employee, or employees whose rate under the Badeaux System is in their opinion unfair, the concern agrees to investigate such operation and in the event such rate is inadequate the concern agrees to readjust such rate and to make said rate retroactive to the date case is presented.
5. Strike to be officially called off.
6. Employees to return to work in their former occupations without discrimination.
7. That when business conditions and the economic conditions of the company would justify it, the company will give consideration to the question of granting vacations with pay. The company agreed that when it felt its economic conditions warranted, consideration would be given to this question.

The Board insisted that these recommendations be presented to the mass meetings of the workers and to the directors of the company for acceptance or rejection, the Board stating that the recommendations were a fair and just settlement of the difficulties which both had encountered. This was agreed to by both parties and on June 26 the Board was advised by the union and the company that the recommendations had been accepted and the employees would return to work immediately. This concern had been in existence for a period of 50 years and had experienced the first strike in its history, which strike was successfully concluded through the efforts of the Board with but one day's cessation of work.

Shoe Workers, Lowell. A serious strike occurred in Lowell on June 1, involving twelve hundred employees of the Chelmsford Shoe Company, Inc., the Federal Shoe Company, Inc., the Economy Shoe Company and the Lowell Shoe Company. On June 2 the members of the Board visited Lowell and called into conference at the City Hall the representatives of the companies and the union with whom they had previously had contractual relations, the United Shoe and Leather Workers' Union, Locals Nos. 76, 46, 37 and 38. The issues presented at this conference included wage rates, hours of employment, the question of a union agreement and the termination date of the new contract. It appeared that the previous agreement expired on May 31. At this conference, which continued for the entire day and until three o'clock the following morning, the Board invited the mayor and the citizens' committee, together with the secretary of the Lowell Chamber of Commerce, to participate as interested parties. It appeared that these men had had many previous conferences with the affected parties prior to the strike in the hope of averting the same, but without success. As a result of the Board's intervention, a settlement acceptable to both parties was finally agreed upon. This settlement provided for the establishment of a 40-hour week, with the privilege of working an extra hour a day for eight weeks during peak production, but in no case was there to be any Saturday work. A wage rate, on the basis of the rate then in effect, was established, with the exception of a possible change as to the rate to be paid bench operators, which was to be submitted to arbitration. The termination date of the agreement was set by the Board as January 1, with the understanding that negotiations for a new contract were to start on November 1 and in the event prices were not agreed upon by December 8, either party could abrogate the agreement. The acceptance by both sides of the Board's recommendations brought to a termination a strike which had serious possibilities and was the means of preventing the removal of at least one concern which had threatened to locate its business elsewhere.

LIST OF INDUSTRIES AFFECTED AND PRINCIPAL DIFFERENCES IN CONCILIATION AND ARBITRATION CASES

Industries Affected: Boxes, Building, Carpet, Coal Distributing, Express, Fur, Furniture, Garment, Hat, Lumber, Match, Paper and Twine, Rubber, Silver Plated Ware, Steel and Wire, Storage, Textile, Transportation.

Principal Differences: Wages, Hours, Working Conditions, Discharge, Discrimination, Union Recognition, Terms of Agreement, Removal.

ARBITRATION

<i>Industries Affected</i>	<i>Issues Arbitrated</i>
Coal Distributing (truck driver, teamsters)	Wages, Terms of Agreement
Garment	Discharge, Discrimination, Violation of Decision, Wages
Lumber (chauffeurs, teamsters, helpers)	Terms of Agreement
Sand and Gravel (chauffeurs, teamsters, helpers)	Wages, Hours
Shoes	Wages
Silver Plated Ware	Hours, Conditions
Street Railway	Terms of Agreement
Tanning	Wages, Discharge, Discrimination, Interpretation, Seniority Rights
Textile	Wages, Working Conditions
Transportation (truck drivers)	Terms of Agreement

REPORT OF THE MINIMUM WAGE COMMISSION

JOHN J. MURRAY, resigned; succeeded by THOMAS F. CURLEY, *Chairman*;
JOHN L. CAMPOS; RAYMOND V. McNAMARA;
MARY E. MEEHAN, *Acting Director*

OUTLINE OF FUNCTIONS

The duties of the Minimum Wage Commission under the law comprise the following functions: investigating the wages of women and minors in occupations where there is reason to believe that the wages of a substantial number are below the requirement of healthful living; establishing wage boards to recommend minimum rates for women and minors; entering wage board decrees based on the recommendations of the boards; inspecting to determine compliance with the decrees; reconvening wage boards to meet changes in the cost of living; and publishing the names of employers found violating its decrees.

INTRODUCTION

The Uniform Minimum Wage Law, effective September 12, 1934, continued in operation until June 25, 1936, when an emergency measure, chapter 430 of the General Laws, was passed and signed by the Governor of the Commonwealth. This act was considered essential to prevent substantial injury to the public welfare; to provide the necessary protection to women and minors engaged in industry in this commonwealth; and to preserve public health, safety and convenience.

The text of the new law is practically the same as chapter 308, which was in effect in 1934 and 1935. However, the administration of work in connection with minimum fair wage rates for women and minors is now under the jurisdiction of the Department of Public Health rather than the Department of Labor and Industries.

New minimum wage commissioners have been appointed by the Governor. These now include Commissioner of Labor and Industries, James T. Moriarty, Chairman; Commissioner of Public Health, Henry D. Chadwick, M. D., and Commissioner of Public Welfare, Walter V. McCarthy. Assistant Commissioner of Labor and Industries, Mary E. Meehan, was appointed Executive Secretary to the Commission.

During the present year the work of the Commission has entailed not only making inspections and securing compliance with existing decrees and directory orders, but it also included the task of creating directory orders for industries still covered by decrees. This necessitated the forming of a separate wage board for each industry.

Despite the changes in administration and official personnel, the routine of the Minimum Wage Commission has been uninterrupted. It is anticipated that during the coming year all occupations formerly covered by decrees will be brought within the scope of directory orders having mandatory provisions.

OUTLINE OF ACTIVITIES

In the first half of the fiscal year 1936, the Minimum Wage Division functioned under the Department of Labor and Industries and activities were administered by the Minimum Wage Commission, comprised of Associate Commissioners John J. Murray, Chairman, John L. Campos and Raymond V. McNamara; and Assistant Commissioner, Mary E. Meehan, Acting Director. On April 29, 1936, John J. Murray resigned as chairman of the Commission, and Thomas F. Curley was appointed to fill the vacancy on May 1, 1936.

During this period the usual inspections were made in order to secure conformity with the existing decrees. Homeworkers were checked for compliance and re-inspections were made in all instances of reported low wages, in an endeavor to bring about compliance. Investigations were made of all sweatshop conditions brought to the attention of the Commission. In most of these cases correspondence and interviews brought about some adjustment.

In response to petition signed by a representative group of citizens, the Commission made a special investigation of the wages paid in the waste sorting industry. Twenty-eight firms were visited and 561 records were secured.

As a result of requests to form wage boards for several of the occupations having

no established minimums, and in which low wage rates prevail, the Commission has recommended that a study be made of wages in the specified industries to determine whether or not the establishment of wage boards for the occupations would be justified.

On June 19, 1936, Secretary of Labor Frances Perkins called a conference to consider problems created by the Supreme Court decision in the New York Minimum Wage Case. The Department of Labor and Industries was represented at this meeting by James T. Moriarty, Commissioner; Thomas F. Curley, John L. Campos and Raymond V. McNamara, Associate Commissioners; and Mary E. Meehan, Assistant Commissioner. Representatives from eleven other states also attended this conference.

In view of the decision of the U. S. Supreme Court in connection with the validity of the New York minimum wage law, the Governor of the Commonwealth deemed it necessary for the General Court to pass an emergency minimum wage measure. Chapter 430 of the acts of 1936 was given precedence over chapter 308 of the acts of 1934 and the commissioners of Public Health, Labor and Industries, and Public Welfare were given control of minimum wage work.

The enactment of the new law necessitated many alterations in schedules and other printed material. Extra help was required and the Minimum Wage Commission called upon the National Youth Administration for temporary assistance. In this way additional expense for outside clerical help was eliminated and the routine work of the Commission was continued.

NEW WAGE BOARDS

Of the twenty-two decrees that have been in effect, four were revised under chapter 308 and six have been revised under chapter 430. The Commission is now active in completing the membership of the remaining twelve wage boards. The report of the Muslin Underwear Wage Board was rejected by the Commission because it felt that the employee members were not adequately represented at the meetings. A new board for this occupation is in process of formation at the present time.

During the past year, wage boards reports for the following occupations were accepted by the Associate Commissioners of the Department of Labor and Industries: retail store, electrical equipment and supplies, and boot and shoe cut stock and findings.

Although recommendations were submitted to the present Minimum Wage Commission during the fiscal year of 1936, directory orders for the candy, corset, brush, men's furnishings, women's clothing, and men's clothing and raincoat occupations do not become effective until within the period of the succeeding year.

In every instance in which wage board recommendations have been accepted the minimum rates set forth have represented an increase over the one in effect.

INSPECTIONS

The work of inspection embraced all the decrees which were operative under the recommendatory law (chapter 151), and those directory orders which were admitted under the new law (chapter 430). This work involved a careful survey of payroll records in industries covered by decrees and directory orders.

During the entire year minimum wage investigators inspected 1,647 establishments, taking payroll records for 42,866 women and minors. In addition 8,474 reinspections were taken under eighteen decrees, including 210 establishments. This together with the inspection of home workers, made a grand total of 51,505 records secured in 1,872 establishments.

A more detailed report of the work of the Minimum Wage Commission will be found in the annual report of the Department of Public Health.

DIRECTORY ORDERS

During the year Directory Orders for the electrical equipment and supplies, retail store, and boot and shoe cut stock and findings industries have been established by the Commission.

Following are lists of the members who served on the boards, also the minimum fair wage rates established, special provisions, and definitions pertaining to each industry.

ELECTRICAL EQUIPMENT & SUPPLIES WAGE BOARD

List of Members

Representing the Public

PROFESSOR ARTHUR N. HOLCOMBE, Chairman, 20 Berkeley Street, Cambridge

Representing the Employers:

W. G. Mitchell
General Electric Company
River Works
Lynn

William L. Muentner
United American Bosch Company
Springfield

Tobe Deutschmann
Tobe Deutschmann Company
Canton

Representing the Employees:

Mrs. Florence B. Patterson
Hygrade Sylvania Lamp Co.
Salem

Miss Gladys F. Fenton
Warren Telechron Co.
Ashland

Matthew Campbell
Westinghouse Electric Co.
Springfield

COMMONWEALTH OF MASSACHUSETTS

MINIMUM WAGE COMMISSION

Directory Order Number 2

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

BASIC WAGE RATES:

1. No women or minors employed in the electrical equipment and supplies industry shall be paid less than the following rates:
 1. For women of ordinary ability, not less than 35 cents per hour.
 2. For beginners, irrespective of age, not less than 30 cents per hour.

SPECIAL PROVISIONS:

1. Piece rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for any given period of employment not less than the time wages herein prescribed for such period.
2. Waiting time: Time during which employees are required to wait on employer's premises and no work is provided by the employer, shall be counted as working time and paid for at the individual worker's regular wage rate.

DEFINITIONS:

1. Electrical Equipment and Supplies Occupation:
The above-named occupation covers the manufacture of such products as incandescent lamps, electric-lighting accessories, radios, radio parts, mica, insulated wire, fuses, signal and protective systems, and various kinds of electrical appliances and devices for household and office use. It is represented by such products as telephone cords, fire-alarm apparatus, electric-light sockets, automobile lighting fixtures, spark plugs, electric irons and similar devices.
2. Employees of ordinary ability: Employees, irrespective of age, who have worked in the industry six months, three months of which were in a particular factory; provided that an employee who has not been employed in the occupation eight months or more and who returns to work in a factory where he or she has been previously employed, may be rated as a beginner for a period of not more than one month.
3. This order shall become effective on May 1, 1936.

RETAIL STORE WAGE BOARD

List of Members

LaRue Brown, Esquire, Chairman, 185 Devonshire Street, Boston

Representatives of Employers:

William H. Bixby
 Superintendent of Personnel
 William Filene's Sons Company
 Boston

Charles A. Whipple
 President
 Parke-Snow Company
 Waltham

Edward A. Buttner
 President
 Buttner Company
 Plymouth

Representatives of Employees:

Miss Bessie E. Macgibbon
 46 Keeley Street
 Haverhill

Miss Helen Thompson
 29 Montgomery Street
 Lawrence

William Hutchinson
 49 Grampian Way
 Dorchester

COMMONWEALTH OF MASSACHUSETTS

MINIMUM WAGE COMMISSION

Directory Order Number 3

Minimum Fair Wage Standards for Women and Minors Employed
in This Occupation

BASIC WAGE RATES:

1. No woman or minor employed in retail stores shall be paid less than the following rates for a full working week:

	Class A	Class B	Class C
1. Experienced workers	\$14.50	\$14.00	\$13.50
2. Inexperienced workers:			
a. Less than 1 year's experience, or less than 19 years of age	13.50	13.00	12.50
b. Under 18 years of age	12.50	12.00	12.00

2. These rates shall represent the minimum fair wage rates to be paid a full-time employee. An employee regularly employed for 36 hours per week or over shall be regarded for the purpose of this order as a full-time employee.

SPECIAL PROVISIONS:

1. Workers who are employed for a less number of hours than that required of full time women workers shall be paid at a rate per hour not less than that proportion of the full time minimum fair wage which the number of hours for which such short time workers are employed bears to the number of hours per week required of full time women workers.
2. Waiting time: Time during which employees are required to wait on the employer's premises and no work provided by the employer shall be counted as working time and paid for at the individual worker's regular wage rate.

DEFINITIONS:

1. Retail Store Occupation:
The above-named occupation includes all women and minors employed in retail establishments, unless and until their specific employment is governed by a minimum fair wage order, decree or ruling other than this general retail store decree.
2. Classification of Communities:
The Minimum Wage Commission has adopted a classification of communities by population groups, as in the recent Code, though fewer divisions. In the schedule adopted, Class A is places with over 500,000 population (Boston); Class B is cities and towns under 500,000 and over 30,000 population; Class C is all smaller communities.

3. Employees of Ordinary Ability:

An experienced employee is one not less than nineteen years of age who has had one year's experience (not necessarily continuous nor for the same employer) in the occupation.

4. This order shall become effective on October 1, 1936.

BOOT AND SHOE CUT STOCK AND FINDINGS WAGE BOARD

*List of Members**Representing the Public*

Prof. Carroll W. Doten, *Chairman*, 68 Garfield Street, Cambridge

Representatives of the Employers:

James Christie
Hamilton Wade Company
Brockton

Edwin C. Cotton
Renton Heel Company
Lynn

Arthur A. Mullins
Nat'l Assn. of Wood Heel Mfgs.
Haverhill

Representatives of the Employees:

Miss Frances Cook
Haley-Cate-Rockwood Company
Everett

Mr. Galen Bumpus
C. S. Pierce Co.
Brockton

Eugene Goyette
5 Hilldale Avenue
Haverhill

COMMONWEALTH OF MASSACHUSETTS

MINIMUM WAGE COMMISSION

Directory Order Number 4

Minimum Fair Wage Standards for Women and Minors Employed
in This Occupation

BASIC WAGE RATES:

1. For women and minors of ordinary ability, not less than \$14.70 a week.
2. For employees who have had less than three months' experience, not less than \$12.00 a week.
3. These rates are based on full-time work by which is meant the full number of hours required by employers and permitted by the laws of the commonwealth.

SPECIAL PROVISIONS:

1. Piece rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for any given period of employment not less than the time wages herein prescribed for such period.
2. Waiting time: Time during which employees are required to wait on the employer's premises and no work is provided by the employer, shall be counted as working time and paid for at the individual worker's regular wage rate.

DEFINITIONS:

1. Boot and Shoe Cut Stock and Findings Occupation:
The above-named occupation comprises the manufacture of such products as counters, innersoles, shoe trimmings and ornaments, stays, wood and leather heels, shanks, rands and similar lines.
2. Employees of ordinary ability: Employees who have had three months' or more experience in the industry.
3. This order shall become effective on February 1, 1937.

REPORT OF THE DIVISION OF STATISTICS

ROSSELL F. PHELPS, *Director*

INTRODUCTION

This report is the seventeenth annual report of the Division of Statistics and covers the work of the division during the year 1936. The principal branches of the work of the Division of Statistics are the collection and publication of statistics of labor and manufactures and the answering of inquiries relative to the industries of the commonwealth, the rates of wages, hours of labor, and the conditions of employment. These several branches of the work of the division during the year 1936 are discussed in this report.

The statistical data herein presented relate for the most part to the calendar year 1936, but summary data for certain prior years are also included for purposes of comparison, and charts showing, graphically, the trends of employment and earnings of wage-earners in the principal industries and municipalities in the commonwealth appear in the appendix to this report. As there is no separate printed bulletin of this division in which these tables and charts have been published, they have been included in this report for purposes of permanent record.

In addition to its regular work, the division, during the past year, has completed the "Investigation Relative to Discrimination Against Older Wage Earners," undertaken in accordance with Chapter 33, Resolves of 1935, and has nearly completed the "Compilation of the Statistics of Manufactures in Massachusetts for the years 1920-1935, Inclusive," which was undertaken as a WPA project, a considerable part of the funds required for this purpose having been furnished by the WPA administration.

These two special investigations are discussed later in this report. The division has also been called upon to furnish much information for the use of various private and governmental agencies and individuals and to answer numerous inquiries with reference to industrial changes which have occurred during recent years. In some cases, special investigations were undertaken in order to answer such inquiries and to supply additional information supplementing the official records already available in the files of the division.

INDUSTRIAL TRENDS IN MASSACHUSETTS, 1925-1936

The industrial depression in Massachusetts, which first became evident in 1929, reached its lowest point in July, 1932. Then followed gradual increases from month to month in industrial activity, which have since continued, although interrupted by occasional recessions for short periods.

In discussing the industrial changes in Massachusetts which have occurred during the period of 12 years (1925-1936) covered by this review, reference is made to the *manufacturing industries only*, but in this connection attention is called to the fact that, because of the predominance of the manufacturing industries in this state, nearly all other classes of business (such as wholesale and retail trade, transportation, public utilities, building and highway construction, and the service industries) are largely dependent upon activity in the manufacturing industries.

In the following table data are presented for the years 1925-1936, inclusive, showing the average number of wage-earners employed in the manufacturing industries in the commonwealth, the amount paid in wages, the average annual earnings of those employed, the *real* value of their annual earnings, and the relative cost of living in Massachusetts, based on wage-earners' budgets. Corresponding index numbers for each of these items are also presented in the table. These index numbers have been computed, using as a base (100) the averages of the respective items for the three years, 1925-1927. The trends are shown, graphically, on the accompanying chart.

Employment. — On reference to Table 1 and the accompanying chart, it will be observed that in 1936 the index number representing employment of wage-earners in the manufacturing industries in Massachusetts was 77.4, which exceeded the corresponding index numbers for each of the five years, 1931-1935, inclusive. Beginning in 1927 and with the exception of the year 1929, when there was some increase in employment over 1928, there was a continuous decrease from year to

year in the number of wage-earners employed in the manufacturing industries until 1932, when the index number reached the lowest point (59.3), representing a reduction of 240,095, or 40.7 per cent, in the number employed in 1932 as compared with the average number (590,616) employed during the three-year base period, 1925 to 1927.

Table 1. — *Industrial Trends in Massachusetts, 1925-1936*

(Base — Average for three years, 1925-1927 = 100)

YEARS	ANNUAL STATISTICS OF MANUFACTURES IN MASSACHUSETTS				INDEX NUMBERS ²			
	Average Number of Wage- Earners Employed ¹	Amount Paid in Wages During the Year ¹	Average Annual Earnings of Wage- Earners ¹	Average Number of Wage- Earners Employed ¹	Amount Paid in Wages during the Year ¹	Average Annual Earnings of Wage- Earners ¹	Cost of Living ³	Real Value of Average Annual Earnings
Base ²	590,616	\$720,097,884	\$1,219.23	100.0	100.0	100.0	100.0	100.0
1925	591,438	716,155,593	1,210.87	100.1	99.5	99.3	100.9	98.4
1926	602,343	738,208,510	1,225.56	102.0	102.5	100.5	100.7	99.8
1927	578,068	705,929,549	1,221.19	97.9	98.0	100.2	98.3	101.9
1928	540,927	670,063,291	1,238.73	91.6	93.1	101.6	98.6	103.0
1929	557,494	694,805,312	1,246.30	94.4	96.5	102.2	99.2	103.0
1930	481,449	573,838,044	1,191.90	81.5	79.7	97.8	95.7	102.2
1931	434,441	474,189,202	1,091.49	73.6	65.9	89.5	87.2	102.6
1932	350,521	334,358,550	953.89	59.3	46.4	78.2	78.8	99.2
1933	398,592	354,523,624	889.44	67.5	49.2	73.0	76.3	95.7
1934	423,933	408,617,489	963.87	71.8	56.7	79.1	81.8	96.7
1935 ⁴	438,830 ⁴	441,152,000 ⁴	1,005.29	74.3	61.3	82.5	85.3	96.7
1936 ⁵	457,261 ⁵	480,856,000 ⁵	1,051.60	77.4	66.8	86.3	84.9	101.6

¹ Compiled from reports of the Annual Census of Manufactures in Massachusetts for the years 1925 to 1935.

² In computing the index numbers the average for the three years, 1925, 1926, and 1927, was taken as the base (100) in each case.

³ Compiled from reports of the Division on the Necessaries of Life.

⁴ Since the publication of the report for 1935, the preliminary results of the annual census of manufactures in Massachusetts for the year 1935 have become available and are here substituted for the estimates published in that report.

⁵ Estimates based on results of "Monthly Surveys of Employment and Earnings in Representative Manufacturing Establishments," by the Division of Statistics.

During each year since 1932 there was an increase in the average number of wage-earners employed, amounting during the four years to 106,740, or an increase of 30.5 per cent over the average number (350,521) employed in 1932. Notwithstanding this large increase during the past four years, the average number of wage-earners employed in the manufacturing industries in 1936 (457,261) was still less by 133,355, or 22.6 per cent, than the average number (590,616) employed during the three-year period, 1925-1927 (a period of normal activity), and, notwithstanding a small increase in the population of the state, which increase during the ten-year period, 1925 to 1935, as shown by the state censuses taken in those years, amounted to 206,705, or 5.0 per cent.

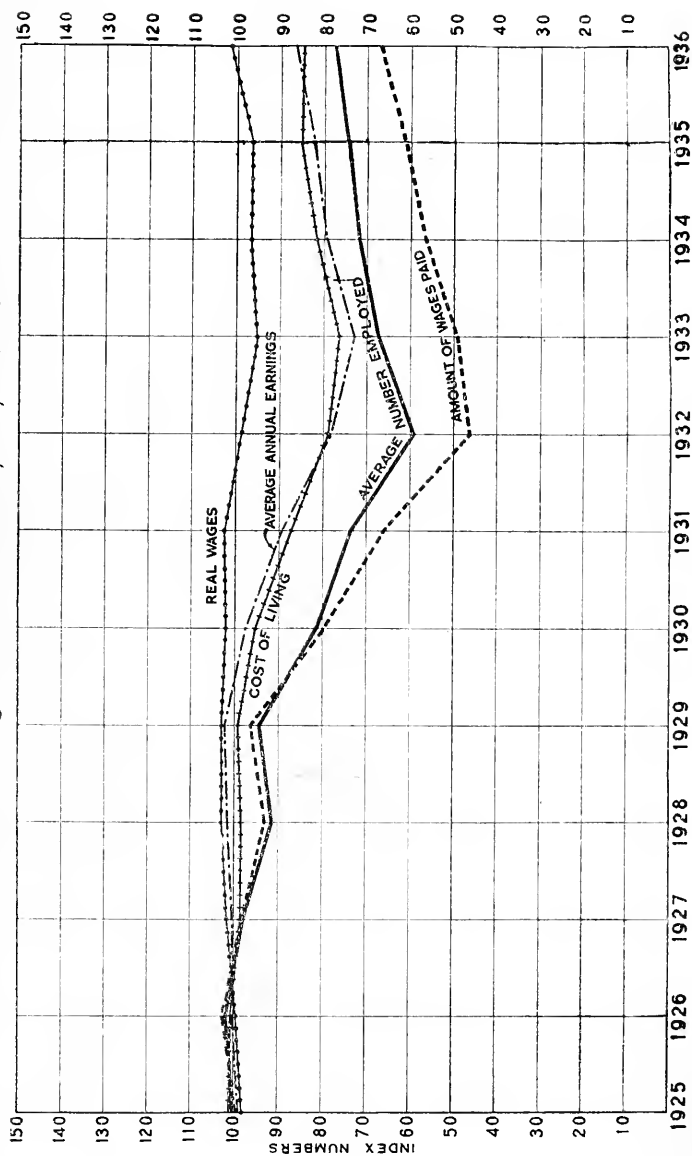
While the increases from year to year in the average number of wage-earners employed in the manufacturing industries in Massachusetts were relatively small, they were, nevertheless, very encouraging because they represented a *continuous upward trend* during the past four years, which was in marked contrast with the *general downward trend* during the six-year period, 1927 to 1932.

The Wage Fund. — In 1936 the index number representing the amount paid in wages to those employed in the manufacturing industries in Massachusetts was 66.8 which exceeded the corresponding index number for each of the five years 1931-1935, inclusive. The lowest point reached during the depression was in 1932 when the index number was 46.4, which represented a reduction of \$385,739,334, or 53.6 per cent, in the total amount paid in wages to those employed in the manufacturing industries in 1932, as compared with the average of the amounts paid, \$720,097,884, during the three-year period, 1925 to 1927.

During each year since 1932 there was an increase in the amount paid in wages to those employed in the manufacturing industries, and the total increase during the four years amounted to \$146,497,450, or an increase of 43.8 per cent over the corresponding amount (\$334,358,550) paid in 1932. This percentage increase (43.8) exceeded the corresponding percentage increase (30.5) in the average number of wage-earners employed. This greater percentage increase in the amount of wages paid was the result of three factors — namely, an increase in the actual

TRENDS OF EMPLOYMENT, EARNINGS AND REAL WAGES IN MANUFACTURING INDUSTRIES, AND COST OF LIVING IN MASSACHUSETTS, BY YEARS, 1925-1936.

Base: Average for Three Years 1925, 1926, 1927 = 100



number of wage-earners employed, and in the number of hours worked by many of those employed, and numerous increases in the rates of wages per unit of time worked. On reference to the accompanying chart, it will be observed that in 1930 the trend line representing the amount of wages paid fell below the trend line representing the average number employed, and the distance between the two lines increased during each of the years 1931, 1932 and 1933, but, thereafter, as activity in the manufacturing industries increased, the increases in the amounts paid in wages were relatively greater than the increases in the average number employed, and, consequently, the *upward trend* of the line representing amount of wages paid was more pronounced than that of the line representing the average number employed.

Annual Earnings of Employees. — During the period of twelve years, 1925 to 1936, inclusive, the average annual earnings of wage-earners employed in the manufacturing industries showed marked fluctuations. The highest annual average earnings recorded during the period were \$1,246.30 in 1929, and the lowest were \$889.44 in 1933. Since 1933, the average annual earnings have increased each year and the total increase during the three years, 1934, 1935, and 1936, amounted to \$162.16, or 18.2 per cent, as compared with the average annual earnings (\$889.44) in 1933. The average annual earnings (\$1,051.60) in 1936 were less by \$167.63, or 13.7 per cent, than the average (\$1,219.23) for the three-year period, 1925–1927, but the *real wages*, or purchasing power of the money earned in 1936, was slightly greater because of the reduction in the cost of living during the period under review.

Real Wages. — The *real value* of the average annual earnings of those employed in each year has been computed by dividing the index number representing the average annual earnings of those employed by the corresponding index number representing the cost of living in that year. During the years, 1927 to 1931, the *real value* of the average annual earnings of those employed was somewhat greater than the base (100). In 1933, the index number fell to 95.7 (the lowest point reached during the entire period, 1925–1936) but in 1934 it increased to 96.7, remained the same in 1935, and in 1936 increased to 101.6.

Cost of Living. — In computing the index numbers representing the cost of living (presented in Table 1) the average of the index numbers for the three years, 1925 to 1927, has been taken as the base (100), whereas the Division on the Necessaries of Life, in computing the original series, has taken 1913 as the base year. During the first five years of the period of twelve years under review, the changes in the cost of living were relatively small, but during the four years, 1930 to 1933, inclusive, there were rather marked decreases from 99.2 in 1929, to 95.7 in 1930, 87.2 in 1931, 78.8 in 1932, and 76.3 in 1933 (the lowest point reached during the entire period). The total decrease during the four years, 1930 to 1933 was 22.9 points, or 23.1 per cent, based on the index number 99.2 in 1929. In 1934, the index number increased to 81.8, and in 1935 to 85.3, but in 1936 there was a slight decrease to 84.9. These changes in the cost of living indicate the effects of the depression and recovery on the prices of commodities included in the wage-earners' budget.

STATISTICS OF LABOR

LABOR BULLETINS

Labor Bulletin No. 174. Thirty-fifth Annual Directory of Labor Organizations in Massachusetts, 1936 (with Statistics of Membership, 1926–1935). — This directory contains, as in previous editions, the name, location, time, and place of meeting, and the name and address of the secretary and business agent of each labor organization having its headquarters in Massachusetts, together with a list of all the national and international labor organizations having one or more affiliated local unions in the United States, and the names and addresses of their respective secretaries in so far as these items could be ascertained.

The number of organizations listed in this directory was 1,667, of which 144 were national and international organizations, 70 were state and district councils, 95 were central labor unions and councils, and 1,358 were local unions.

The statistical data presented in this report have reference to the number and membership of local labor organizations which were in existence in Massachusetts at the close of each of the years 1926–1935. The directory questionnaire sent to

the officials of these unions each year includes an inquiry calling for membership, by sex. These data are tabulated by principal industrial groups and by principal occupations therein, and also by municipalities. Details with respect to individual unions are held strictly confidential and are used only in the compilation of totals. Membership statistics were collected annually beginning with the year 1908, but since 1926 the results have not been published. It was for this reason that the statistics for the years 1926-1935 were presented in print for the purposes of permanent record. At the close of 1935 there were in Massachusetts 1,220 local unions with a total membership of 216,141, of whom 174,216 were males and 41,925 were females. The tabulations do not include unions of letter carriers, post office clerks, or railway mail clerks.

Labor Bulletin No. 175. Time Rates of Wages and Hours of Labor in Massachusetts, 1936. — This is the twenty-sixth of a series of annual reports of a similar nature, the first of which was issued by the former Bureau of Statistics in 1910. Nearly all of the information published in the earlier reports of this series was obtained from officials of labor organizations. From year to year additional information obtained from employers has been included and, beginning with the report for 1924, the reports have been issued under the more appropriate title "Time Rates of Wages and Hours of Labor in Massachusetts."

The information obtained from officials of local trade unions relates to basic rates and hours of labor, the terms of which, in most instances, are definitely expressed in joint agreements between employers and employees. These data are presented by industries, trades, and occupations, and by municipalities represented. Additional information, obtained from official records of employers, has reference to rates of wages and hours of labor affecting employees in Massachusetts who are engaged in certain classes of municipal service, and by street and electric railway companies, and passenger bus companies, and by the telephone company.

MONTHLY SURVEYS

Introductory. — The "monthly surveys" of employment and earnings of wage-earners in Massachusetts were first undertaken in September, 1922, when reports were received from only 202 manufacturing establishments in which 120,804 wage-earners were employed. The scope of these surveys has since been greatly extended, and all important fields of employment in the state are now covered. In December, 1936, reports were received covering 8,626 establishments, in which 513,394 wage-earners were employed. In 1936 special attention was given to improving the list in order to maintain a truly representative coverage.

The Division of Statistics and the Bureau of Labor Statistics of the United States Department of Labor have continued to cooperate in the collection of monthly pay roll data. All reports are obtained directly by the Division of Statistics, but the federal bureau has granted the use of the franking privilege in connection with nearly all of this work and it also supplied the forms used in connection with the survey of manufacturing establishments. No changes of importance were made in the questionnaires used during the past year.

During the first part of the year those schedules desired by the federal bureau for use in compiling its national report were forwarded to that office and returned to the state office each month, as has been the custom for a number of years. In June a new cooperative arrangement was made and two employees of the federal bureau were assigned to Massachusetts, with their official station in Boston. These two employees post directly from the schedules to their records and make all tabulations desired by the federal bureau. This renders it unnecessary to send the schedules back and forth between this office and the Washington office.

Coverage of the Surveys. — In Table 2 data are presented showing, for each industrial group covered by the surveys, the year and month in which the survey was first undertaken and (as of December, 1936) the number of establishments, the number of wage-earners covered, the total amount paid them in wages (in one week), and the approximate size of the sample, expressed as percentages of the total number of persons in the respective industrial groups, according to the most recent census data available.

The estimated coverage for all groups is 45.0, for manufacturing it is 60.0, and for wholesale and retail trade it is 35.0 per cent. The public utility companies,

which are few in number but cover a wide field of operations, have the largest relative showing (95 per cent). The representation in the building construction industry is only 30 per cent, but it is believed that the 666 contractors who reported in December would in normal times employ possibly 75 per cent of the building tradesmen in the state. Many of the contractors employ men only occasionally. The bulletins of the State Department of Public Works and of the Public Works Administration are used in revising the list of contractors engaged in highway construction covered by this survey.

The representation for agricultural employment is small, because very few of the employers of agricultural labor employ any large force of workmen except during the planting or harvesting season. The representation in the several classes is less than 25 per cent. The municipalities from which reports are received include all of the 39 cities and nearly all of the large towns in the state, and wherever possible, a representation of at least 50 per cent of the total number of wage-earners in each of the cities and towns has been secured.

Table 2. — Coverage of Monthly Surveys of Employment and Earnings of Wage-Earners in Representative Establishments in Massachusetts:
By Industrial Groups: December, 1936

INDUSTRIAL GROUPS	SURVEY FIRST UNDERTAKEN		Number of Establishments Covered	Number of Wage-Earners Covered	Total Amount of Wages Paid to Wage-Earners Covered (one week)	Approximate Size of Sample (Percentage) ¹
	Month	Year				
<i>Manufacturing</i>	Sept.	1922	1,694	303,475	\$6,839,256	60.0
<i>Wholesale and Retail Trade</i>	Nov.	1929	4,963	99,084	\$2,026,893	35.0
Wholesale trade	Aug.	1931 ²	745	16,125	450,194	35.0
Retail trade	Aug.	1931 ²	4,218	82,959	1,576,699	35.0
<i>Public Utilities</i>	Jan.	1929	123	47,478	\$1,507,151	95.0
Steam railroads	Jan.	1929	6	21,652	660,759	100.0
Street and electric railways	Jan.	1929	9	9,565	339,211	95.0
Passenger bus companies	Apr.	1931	29	1,963	52,665	90.0
Gas and electric companies	Jan.	1929	79	14,298	454,516	95.0
<i>Construction</i>	Apr.	1927	732	7,636	\$210,850	35.0
Building construction	Apr.	1927	666	6,460	185,963	30.0
Highway construction	June	1931 ²	116	1,176	24,887	90.0
<i>Municipal Employment</i>	Apr.	1931	95	21,416	\$589,367	70.0
<i>Agricultural Employment</i>	Sept.	1931	120	1,336	\$24,163	10.0
<i>Office and Miscellaneous Employment</i>	Mar.	1931	869	37,030	\$783,382	40.0
Amusement and Recreation:						
Clubs and associations	Mar.	1931	25	1,105	17,792	75.0
Theatres	Mar.	1931	124	2,550	59,799	60.0
Hotel Employment:						
Hotels	Mar.	1931	62	4,064	58,414	60.0
Hotel restaurants	Jan.	1932 ²	25 ³	1,956	29,266	75.0
Institutional Employment:						
Hospitals	Mar.	1931	30	3,771	61,023	25.0
Schools and colleges	Mar.	1931	22	1,675	35,187	50.0
Office Employment:						
Banks and trust companies	Mar.	1931	149	3,358	97,957	40.0
Insurance companies and agencies	Mar.	1931	77	3,812	103,106	30.0
Miscellaneous offices	Mar.	1931	69	2,497	69,997	20.0
Personal Services:						
Dyers and cleansers	Mar.	1932	83	2,129	34,923	90.0
Laundries	Mar.	1931	143	6,030	101,982	60.0
Trucking and Handling:						
Express and transfer companies	Mar.	1931	28	1,137	31,902	60.0
Teaming, trucking, and handling	Mar.	1931	57	2,946	82,034	60.0
<i>Totals</i>	—	—	8,646	517,455	\$11,981,062	—
Less duplication ⁴	—	—	20	4,061	130,146	—
<i>All Industrial Groups Combined</i>	—	—	8,626	513,394	\$11,850,916	45.0

¹ Based on average number employed as shown by census data.

² Group sub-divided beginning with returns for the date shown.

³ Of the 62 hotels reporting, 25 operated restaurants.

⁴ Certain public utility companies are also included under "Manufacturing."

Manufacturing. — During the past year there was a net gain of about 150 in the list of manufacturing establishments canvassed. It is not possible to maintain an identical list of reporting establishments for a long period of time because in the course of a year some of the reporting establishments discontinue operations and others cease reporting. Changes and additions are made

from time to time so as to maintain a list of reporting establishments which shall be truly representative by industries, by municipalities, and by industries within the principal municipalities.

By means of this survey it is possible to determine shortly after the close of each month the trend of employment and pay rolls during that month in each of the principal manufacturing industries and cities in the state. The results of the survey are presented in press notices issued between the 15th and 20th of the month following that to which the data relate. These notices show for 38 principal industries and 33 leading industrial cities the following data: number of establishments reporting; and, for the pay roll week including the 15th of the current and the preceding month, the number of wage-earners employed, the amount of the weekly pay roll, and the average weekly earnings of those employed. In addition to the text and detailed tables there is included in each issue a chart showing the trends of employment and of the total amount paid in wages in all manufacturing establishments combined. In December, 1936, the number of establishments from which reports were received was 1,694, or about 20 per cent of the total number of establishments engaged in manufacturing in Massachusetts; and the number of wage-earners covered was 303,475, or about 60 per cent of the total number of wage-earners employed in all manufacturing establishments in the state.

Space does not permit a full presentation in this report of the results of the monthly surveys but four series of index numbers¹ included in this section show the trends of employment of wage-earners and of the amounts paid them in wages in all manufacturing industries as a group and in each of 20 leading industries in the state by months in 1936 with averages for each of the years 1925-1936, inclusive, and also corresponding index numbers for each of 15 of the leading industrial cities. The series of index numbers is adjusted each year in conformity with the latest census returns. The index numbers of employment, by industries, for each of the years 1925-1934, inclusive, were derived from the annual census data, and the index numbers for 1935 and 1936 were derived from the monthly survey data. Index numbers representing amounts paid in wages were computed entirely from the monthly survey data because the annual census schedule does not provide for the reporting of the amounts of the pay rolls *by months*.

For the individual cities the annual census data are not tabulated so as to show employment by months. Accordingly, the index numbers in each of the 15 cities have been computed from the monthly survey data and adjusted, using as a base (100), the average of the numbers employed in 1925-1926-1927, as determined by the exhaustive census taken in each of those years. The trends of employment and amounts paid in wages in the industries and cities are shown graphically in a series of charts² which appear in the appendix to this report.

For all *manufacturing industries combined* the index number representing employment of wage-earners at the lowest point of the depression was 51.7 in July, 1932, since which month employment has increased gradually but fairly steadily each month except for occasional interruptions in the upward trend, until the highest point, 83.6, was reached in December, 1936. The last time that a higher index number was reported was in May, 1930, when the depression was just beginning to be felt in manufacturing.

In 1936 the lowest point was 73.4 in June, and there was a gain in employment each month thereafter. The average for the year 1936 was 77.1, or 22.9 per cent below the average for the basic three-year period 1925-1926-1927, but was higher than the averages for each of the five previous years.

Cotton goods manufacturing continued to be one of the leading industries most seriously affected by the depression. The index number representing employment for the year 1936 was 51.2, which was higher than the average for each of four of the five previous years; the index number for 1934 was slightly above that for 1936. The lowest point in 1936 was 48.6 in June, and the highest point was 54.7 in December.

In the *boot and shoe industry* the index number representing employment in 1936 was 73.7, the lowest for any year during the entire period 1925-1936, inclusive.

¹ See Tables 3, 4, 6 and 7.

² See pages 82 - 97.

Table 3. — *Index Numbers of Employment in Representative Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries: By Years, 1925-1936, inclusive, and by Months in 1936*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1934, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1935 and 1936)

INDUSTRIES (Arranged in order of average number of employees in 1925, 1926, and 1927)	Average Number of Wage- Earnings, 1925-1927	ANNUAL INDEX NUMBERS OF EMPLOYMENT (Base, 100.0 = Average Number Employed in 1925, 1926, and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
		100.1	102.0	97.9	91.6	94.3	81.5	73.5	59.3	67.5	71.8	74.1	77.1
Manufacturing	590,616	103.6	98.5	97.9	70.2	76.3	57.9	50.6	35.0	48.9	53.1	49.4	51.2
Cotton goods	92,841	103.6	98.5	97.9	70.2	76.3	57.9	50.6	35.0	48.9	53.1	49.4	51.2
Boots and shoes	57,710	99.5	102.1	97.0	96.1	95.5	85.1	82.6	75.0	81.0	79.6	75.2	73.7
Woolen and worsted goods	53,526	102.5	102.1	95.4	84.5	85.3	65.6	69.5	53.4	74.4	67.2	75.7	83.3
Electrical machinery, apparatus, and supplies	25,908	96.8	107.7	95.6	99.7	111.3	93.5	77.4	52.4	55.1	52.0	52.4	69.5
Foundry and machine-shop products	19,953	97.9	102.3	99.7	99.2	106.5	92.7	73.9	51.0	53.2	61.6	66.7	73.8
Printing and publishing	14,442	98.5	101.9	99.6	101.3	105.2	104.2	91.6	83.2	78.7	85.9	87.1	90.1
Dyeing and finishing textiles	13,823	98.4	99.6	100.0	98.6	104.5	94.6	80.4	80.4	80.9	93.6	87.4	95.6
Paper and paper goods	12,829	100.7	102.9	96.4	98.2	96.4	90.4	83.0	73.1	74.2	77.6	78.1	79.1
Textile machinery and parts	12,773	107.2	98.8	94.0	81.4	83.0	67.3	58.9	40.7	62.4	68.8	64.1	73.9
Rubber footwear	12,081	94.3	105.7	100.0	105.2	92.4	68.0	52.0	45.2	55.3	56.2	48.8	45.3
Rubber goods, tires, and tubes	10,516	102.1	99.3	98.6	100.3	92.9	82.3	64.0	40.4	65.1	65.8	63.1	65.3
Leather, tanned, curried, and finished	10,482	99.6	97.7	102.7	104.7	102.2	85.4	82.6	67.7	95.2	95.8	99.1	101.4
Hosiery and knit goods	10,100	104.5	99.9	95.6	90.0	87.3	80.5	75.6	67.0	76.0	78.5	81.7	86.0
Clothing, men's	9,543	93.3	102.8	104.0	102.2	100.0	101.7	99.5	83.3	97.4	109.8	144.1	150.8
Bread and other bakery products	8,533	98.8	101.9	99.3	102.8	122.0	117.7	118.1	109.2	126.5	133.5	143.3	137.7
Confectionery	8,123	93.9	103.1	103.1	92.2	92.0	80.5	73.2	63.8	66.8	71.2	72.1	73.3
Furniture	8,117	96.5	104.0	99.5	101.3	105.9	90.6	75.8	59.9	66.0	66.1	68.4	70.5
Boot and shoe cut stock and findings	7,520	92.9	103.8	103.2	101.3	101.8	92.0	85.9	77.4	92.9	93.2	88.5	87.4
Silk and rayon goods	6,804	95.5	96.4	108.1	99.7	108.6	83.5	102.0	83.0	136.4	137.6	162.4	153.0
Clothing, women's	6,225	88.1	100.1	111.9	115.0	121.8	122.2	133.7	112.1	109.8	119.5	123.7	134.6

INDUSTRIES (Arranged in order of average number of employees in 1925, 1926, and 1927)	Average Number of Wage- Earnings, 1925-1927	MONTHLY INDEX NUMBERS OF EMPLOYMENT IN 1936 (Base, 100.0 = Average Number Employed in 1925, 1926, and 1927)											
		January	February	March	April	May	June	July	August	September	October	November	December
		74.3	75.3	74.8	74.5	74.0	73.4	75.4	78.2	79.8	80.4	79.8	83.6
Manufacturing	590,616	51.2	52.6	51.6	51.2	49.5	48.6	49.2	51.0	51.0	49.7	54.0	54.7
Cotton goods	92,841	51.2	52.6	51.6	51.2	49.5	48.6	49.2	51.0	51.0	49.7	54.0	54.7
Boots and shoes	57,710	70.2	73.6	76.9	78.8	75.5	62.8	72.4	73.5	73.9	76.7	67.2	70.4
Woolen and worsted goods	53,526	89.9	90.9	86.0	78.4	79.9	78.9	72.7	80.4	70.6	78.2	86.9	94.1
Electrical machinery, apparatus, and supplies	25,908	54.1	54.1	35.9	59.7	63.9	69.4	72.7	76.4	77.2	51.2	83.6	84.3
Foundry and machine-shop products	19,953	67.7	68.5	68.7	70.3	71.6	73.1	74.1	75.7	77.5	77.9	79.8	80.8
Printing and publishing	14,442	89.4	90.0	89.9	90.3	89.1	88.8	87.6	88.3	91.8	91.8	92.1	92.4
Dyeing and finishing textiles	13,823	90.7	90.7	91.6	92.8	91.1	92.1	92.7	97.3	99.0	100.1	102.1	105.7
Paper and paper goods	12,829	78.3	78.7	78.7	80.7	80.9	79.1	79.0	78.1	78.1	76.8	78.3	82.0
Textile machinery and parts	12,773	73.1	73.6	74.1	74.7	73.6	71.6	70.6	71.0	73.9	74.9	75.0	80.1
Rubber footwear	12,081	48.8	49.3	42.0	42.5	41.5	41.4	44.0	46.4	47.5	48.0	49.3	52.3
Rubber goods, tires, and tubes	10,516	58.9	59.5	59.2	60.1	59.9	60.9	61.5	63.2	72.7	77.7	76.5	73.6
Leather, tanned, curried, and finished	10,482	96.0	96.9	99.0	101.5	100.4	98.0	103.8	103.7	102.7	105.7	104.8	103.7
Hosiery and knit goods	10,100	78.6	81.4	81.9	82.0	83.5	84.8	86.1	89.6	91.7	91.2	90.4	90.9
Clothing, men's	9,543	137.2	141.2	134.8	141.5	121.0	153.0	156.4	161.0	164.5	165.3	155.1	168.8
Bread and other bakery products	8,533	137.2	134.9	134.8	135.6	135.5	138.5	141.2	137.6	138.3	138.8	139.7	139.7
Confectionery	8,123	70.9	65.7	68.5	64.7	64.0	60.6	56.5	69.0	86.9	88.0	92.9	91.6
Furniture	8,117	64.6	66.6	66.2	66.4	65.9	66.1	68.4	71.5	75.9	77.7	78.3	78.4
Boot and shoe cut stock and findings	7,520	88.3	89.0	86.9	86.7	85.6	81.0	90.9	91.1	88.8	86.1	84.3	89.9
Silk and rayon goods	6,804	158.3	157.8	158.9	120.6	93.9	135.2	140.3	156.1	170.7	174.0	175.4	194.6
Clothing, women's	6,225	118.6	122.9	115.3	134.1	136.8	129.7	120.6	136.8	149.1	150.2	152.6	148.8

The usual fluctuations occurred in 1936; the lowest point during the year was 62.8 in June, and the highest point was 79.5 in August.

In the *woolen and worsted goods industry* the index number for 1936 (83.3) showed a decrease when compared with 88.7 in 1935, but was greater than in any of the five years prior to 1935. The lowest point during the year was 76.6 in September, and the highest was 94.1 in December.

In the manufacture of *electrical machinery, apparatus, and supplies* the index number representing employment in 1936 was 69.5, which was much greater than the index number for each of the four preceding years. During the year 1936 there were steady increases each month from the lowest point, 54.1 in January and February, to the highest point, 84.3 in December.

In the manufacture of *foundry and machine shop products* there was an increase in employment from 66.7 in 1935 to 73.8 in 1936. Much larger gains are evident when comparisons are made between 1936 and the years 1932, 1933, and 1934. In 1936 there were gains each month from the lowest point, 67.7 in January, to the highest point, 80.8 in December.

The five major industries discussed above normally provide employment for somewhat over 40 per cent of the total number of wage-earners employed in all manufacturing industries in the state. In the 20 leading industries, for which index numbers of employment are presented in Table 3, the averages of the monthly index numbers for the year 1936, ranged in order from the highest to the lowest, were as follows: silk and rayon goods, 153.0; men's clothing, 150.8; bread and other bakery products, 137.7; women's clothing, 134.6; leather tanned, curried, and finished, 101.4; dyeing and finishing textiles, 95.6; printing and publishing, 90.1; boot and shoe cut stock and findings, 87.4; hosiery and knit goods, 86.0; woolen and worsted goods, 83.3; paper and paper goods, 79.1; textile machinery and parts, 73.9; foundry and machine-shop products, 73.8; boots and shoes, 73.7; confectionery, 73.3; furniture, 70.5; electrical machinery, apparatus, and supplies, 69.5; rubber goods, tires, and tubes, 65.3; cotton goods, 51.2; and rubber footwear, 45.3.

Index numbers representing the total amount paid in wages to wage-earners employed in all manufacturing industries combined, and in each of the 20 principal industries during the years 1925-1936, inclusive, are presented in Table 4.

The total amount paid in wages to the wage-earners employed in all manufacturing industries combined in 1936 was less by 31.4 per cent than the average amount paid in wages for the three years, 1925-1927, taken as a base period, but the index number (68.6) in 1936 exceeded the corresponding index numbers for each of the five preceding years. An examination of the records for the years prior to 1931 shows that the trend of the total amounts paid in wages ordinarily followed very closely the trend of employment, but during the period of the depression the losses in the amount of wages paid were, relatively, much greater than the decreases in the numbers of wage-earners employed, due not only to reductions in the numbers employed, but also to part-time employment, and decreases in rates of wages of those who were employed. For example, the index number representing the amount paid in wages in 1932 (the worst year of the depression) was 46.4, while the index number representing employment was 59.3. In 1933, the number of wage-earners employed and the amount paid in wages increased at nearly the same rate. In 1934 and 1935 there were increases in the number of wage-earners employed in each of these years, and even larger increases in the earnings of those employed, as a result of more hours of employment and increases in the rates of wages which they received.

In 1936 no marked changes in the trend of employment and amounts paid in wages were noted during the first six months, but during the last six months, and particularly in December, when many wage increases were granted and wage cuts were restored, there were large increases in the amounts paid in wages.

The index numbers representing the amounts paid in wages in 1936 in the 20 leading industries, arranged in order from the highest to the lowest, were as follows: men's clothing, 132.9; silk and rayon goods, 127.6; bread and other bakery products, 119.7; women's clothing, 104.2; leather, tanned, curried, and finished, 94.1; printing and publishing, 88.1; dyeing and finishing textiles, 87.3; textile machinery and parts, 80.9; hosiery and knit goods, 80.1; boot and shoe cut stock and findings,

Table 4. — *Index Numbers of Total Amounts Paid in Wages in Representative Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries: By Years 1925-1936, inclusive, and by Months in 1936*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1934, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1935 and 1936)

Industries (Arranged in order of average number of employees in 1925, 1926, and 1927)	Average Amounts Paid in Wages (One Week) ¹	ANNUAL INDEX NUMBERS OF AMOUNTS PAID IN WAGES (Base, 100.0 = Average Amount Paid in Wages in 1925, 1926, and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Manufacturing	\$13,810,429	99.5	102.5	98.0	93.1	96.5	79.7	65.9	46.4	49.9	57.6	63.0	68.6
Cotton goods	1,718,193	102.5	99.2	98.0	93.1	96.5	79.7	65.9	46.4	49.9	57.6	63.0	68.6
Boots and shoes	1,286,395	97.7	105.0	97.3	68.3	73.2	52.9	43.4	25.3	35.2	41.2	39.1	41.5
Woolen and worsted goods	1,182,160	105.3	100.5	94.2	95.2	93.7	75.9	68.1	54.9	53.8	60.0	58.6	56.3
Electrical machinery, apparatus, and supplies	691,421	97.4	108.6	94.0	84.2	113.8	93.6	63.1	34.0	57.9	54.5	51.2	74.8
Foundry and machine-shop products	574,274	96.6	103.0	100.4	101.7	110.1	92.1	62.9	34.0	36.0	39.9	59.8	59.8
Printing and publishing	482,840	97.8	101.0	101.2	105.6	111.7	107.6	93.2	78.1	78.1	80.1	82.7	88.1
Dyeing and finishing textiles	308,797	100.0	99.2	100.8	97.7	104.3	92.2	72.1	53.6	62.6	73.4	73.9	87.3
Paper and paper goods	318,337	98.9	105.2	95.8	89.9	100.3	89.7	72.1	53.6	48.3	55.0	61.1	66.5
Textile machinery and parts	324,741	105.0	99.1	95.9	80.6	84.1	62.1	52.4	30.4	51.8	56.6	61.1	80.9
Rubber footwear	271,755	95.4	95.4	109.2	105.6	95.4	65.5	45.1	31.5	40.9	43.4	39.3	38.5
Rubber goods, tires, and tubes	261,155	102.1	100.2	97.7	100.7	91.1	76.8	57.0	42.4	49.0	52.2	50.2	56.3
Leather, tanned, curried, and finished	273,500	99.4	98.3	102.3	101.9	99.6	81.7	75.0	60.7	77.8	89.7	89.5	94.1
Hosiery and knit goods	182,627	102.0	99.9	98.1	96.2	93.9	82.7	71.1	55.7	67.4	85.5	123.7	80.1
Clothing, men's	188,826	91.2	105.1	103.7	97.4	100.2	93.1	83.0	61.8	67.4	85.5	123.7	132.9
Bread and other bakery products	217,211	100.6	102.0	97.4	100.2	121.0	115.1	112.6	94.0	106.9	101.9	113.9	139.7
Confectionery	137,269	94.4	104.4	101.2	96.6	94.2	87.9	69.6	52.7	49.7	61.1	52.3	64.7
Furniture	209,072	93.3	105.5	101.2	101.9	109.4	84.9	64.7	44.3	44.0	46.8	52.9	57.6
Boot and shoe cut stock and findings	94,927	93.0	104.3	102.7	96.4	97.6	84.4	74.0	60.0	72.2	79.2	78.3	79.2
Silk and rayon goods	139,885	93.8	101.8	104.4	97.9	97.4	80.8	79.7	57.2	99.0	99.5	131.9	127.6
Clothing, women's	133,271	85.0	101.3	113.7	109.9	121.7	114.1	110.4	77.3	72.2	91.8	97.5	104.2

Industries (Arranged in order of average number of employees in 1925, 1926, and 1927)	Average Amount Paid in Wages (One Week) ¹	MONTHLY INDEX NUMBERS OF AMOUNT PAID IN WAGES IN 1936 (Base, 100.0 = Average Amount Paid in Wages in 1925, 1926, and 1927)											
		January	February	March	April	May	June	July	August	Septem-ber	Octo-ber	Novem-ber	Decem-ber
Manufacturing	64.8	65.9	65.9	65.3	66.0	65.4	63.9	66.4	70.0	70.3	71.4	73.6	79.9
Cotton goods	41.0	41.5	40.8	40.7	40.7	39.6	38.5	39.6	41.4	40.6	40.3	44.8	49.8
Boots and shoes	53.2	62.1	62.2	61.5	55.6	55.6	40.3	56.2	60.3	63.4	58.4	44.5	52.3
Woolen and worsted goods	83.1	82.3	74.1	69.7	70.9	71.9	70.1	71.9	71.6	62.5	64.4	78.4	98.0
Electrical machinery, apparatus, and supplies	48.3	44.0	46.8	59.3	57.7	60.1	65.2	66.1	64.8	68.1	69.8	72.0	74.4
Foundry and machine-shop products	59.9	59.9	59.8	61.9	65.0	65.0	65.2	65.2	66.9	68.1	68.3	73.1	78.7
Printing and publishing	86.4	86.2	86.9	89.2	88.2	85.6	85.2	83.6	89.8	91.4	88.3	88.7	93.1
Dyeing and finishing textiles	76.9	81.3	89.8	82.1	83.4	83.6	83.6	83.6	83.6	83.6	83.6	83.6	108.5
Paper and paper goods	62.5	63.5	65.1	71.1	69.3	65.3	65.3	62.4	62.3	63.0	62.4	70.0	70.0
Textile machinery and parts	82.7	84.0	81.9	79.7	79.7	72.5	72.5	72.6	75.2	77.7	78.5	83.6	97.5
Rubber footwear	40.1	33.4	36.2	35.5	34.8	33.9	33.9	35.7	37.5	40.4	40.3	48.0	48.0
Rubber goods, tires, and tubes	48.4	49.3	49.8	52.1	51.1	52.2	52.2	52.6	54.7	58.6	67.0	68.5	70.7
Leather, tanned, curried, and finished	90.5	90.2	87.8	91.6	91.3	89.4	89.4	95.9	95.8	87.4	88.0	87.9	103.9
Hosiery and knit goods	69.2	72.5	75.6	74.1	77.3	76.0	76.0	79.6	86.1	87.4	88.0	87.9	87.2
Clothing, men's	121.6	127.5	133.5	117.9	98.4	134.6	141.2	153.0	143.4	143.4	147.3	127.4	149.2
Bread and other bakery products	120.6	117.0	116.2	116.5	120.2	120.1	121.4	116.8	121.0	121.0	122.4	122.4	123.8
Confectionery	67.4	57.2	60.6	55.8	52.7	53.3	45.0	61.6	78.2	75.4	83.3	85.5	85.5
Furniture	49.5	51.9	51.9	51.4	52.3	54.8	60.9	61.6	60.9	61.6	68.9	69.0	70.1
Boot and shoe cut stock and findings	80.7	80.6	77.8	79.2	74.6	68.4	85.4	84.7	80.1	75.9	74.3	88.7	88.7
Silk and rayon goods	131.4	128.8	128.1	88.8	76.5	103.6	115.9	135.6	145.8	145.8	144.1	149.1	182.9
Clothing, women's	87.5	92.7	89.6	111.2	109.7	96.4	96.4	84.5	107.6	115.1	115.9	119.3	120.3

¹ Average of the weekly amounts paid in wages in 1925, 1926, and 1927 = Base (100).

Table 5. — Average Weekly Earnings of Wage-earners in Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries: By Years 1925-1936, inclusive, and by Months in 1936

Base. — Average Weekly Earnings of Wage-earners Employed in the Three-year Period 1925-1926-1927.
(Sources. — Annual Census of Manufactures, 1925-1934, and Monthly Survey of Representative Manufacturing Establishments, 1935 and 1936.)

Industries (Arranged in order of average number of employees in 1925, 1926, and 1927)	Average Weekly Earnings 1925-1927	AVERAGE WEEKLY EARNINGS — BY YEARS												— BY MONTHS													
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	January	February	March	April	May	June	July	August	Septem- ber	Octo- ber	Novem- ber	Decem- ber		
Manufacturing	\$23.39	\$23.23	\$23.51	\$23.42	\$23.76	\$23.91	\$22.86	\$20.94	\$18.29	\$17.06	\$18.98	\$20.00	\$20.91														
Cotton goods	18.52	21.83	18.64	18.59	18.01	17.76	16.90	15.87	18.43	13.14	15.04	15.34	15.66														
Boots and shoes	22.29	21.88	22.62	22.37	22.08	22.35	19.85	18.38	16.33	15.00	17.34	17.68	17.14														
Woolen and worsted goods	26.08	26.70	26.91	26.27	26.29	27.27	25.31	21.44	19.29	15.23	15.93	16.41	18.42														
Electrical machinery, apparatus, and supplies	28.78	28.39	28.98	28.99	29.49	29.77	28.61	24.51	23.66	21.03	22.70	23.98	27.20														
Foundry and machine-shop products	33.44	33.17	33.16	33.99	34.86	35.48	34.61	24.51	23.06	21.03	22.70	23.98	27.20														
Printing and publishing	22.34	22.26	22.25	22.52	22.15	22.37	21.76	21.92	17.90	17.79	18.82	20.27	21.96														
Dyeing and finishing textiles	22.34	22.26	22.25	22.52	22.15	22.37	21.76	21.92	17.90	17.79	18.82	20.27	21.96														
Paper and paper goods	24.39	24.30	25.35	24.67	24.99	25.83	24.60	21.54	18.20	16.56	18.67	20.56	22.12														
Textile machinery and parts	25.45	24.90	25.51	25.94	25.18	25.76	23.44	22.59	19.02	16.56	18.67	20.56	22.12														
Rubber footwear	22.54	22.78	23.00	24.56	22.58	23.23	21.68	19.54	15.68	16.29	19.45	20.65	26.21														
Rubber goods, tires, and tubes	24.84	24.83	25.07	24.61	24.93	24.36	23.17	22.12	17.46	17.39	19.74	19.85	21.54														
Leather, tanned, curried, and finished	26.10	26.05	26.25	25.99	25.40	25.45	24.95	23.70	20.92	21.29	22.67	23.99	24.57														
Hosiery and knit goods	18.10	17.66	18.09	18.54	19.34	19.46	18.58	17.00	15.03	13.80	15.66	15.87	16.76														
Clothing, men's	19.17	19.35	20.23	19.79	18.84	19.85	18.45	16.51	14.69	13.83	15.96	17.67	17.30														
Bread and other bakery products	25.46	25.92	25.49	24.97	24.83	25.24	24.90	24.27	21.92	21.15	20.26	20.85	21.09														
Confectionery	16.90	16.99	17.12	16.99	17.72	17.32	18.45	16.09	13.95	13.74	16.17	16.13	16.19														
Furniture	25.75	24.91	26.15	26.19	25.91	26.61	24.99	21.98	19.03	16.77	17.49	18.99	20.49														
Foot and shoe cut stock and findings	21.94	22.05	21.82	20.87	21.02	20.13	18.89	17.02	15.99	17.69	17.69	18.48	19.02														
Silk and rayon goods	20.59	20.19	21.72	19.86	20.19	18.44	19.89	16.06	14.16	13.47	15.96	17.90	17.54														
Clothing, women's	21.65	20.68	21.07	22.59	20.46	21.40	20.00	17.70	14.77	13.87	15.57	15.87	14.82														
INDUSTRIES (Arranged in order of average number of employees in 1925, 1926, and 1927)																											
Manufacturing	\$20.37	\$20.53	\$20.48	\$20.78	\$20.82	\$20.52	\$20.79	\$21.11	\$20.80	\$20.95	\$21.28	\$22.54															
Cotton goods	15.49	15.26	15.29	15.34	15.43	15.29	15.29	15.71	15.40	15.70	16.06	17.65															
Boots and shoes	17.28	18.47	18.21	17.55	16.57	16.57	14.45	17.47	18.18	17.07	14.90	16.73															
Woolen and worsted goods	18.62	18.23	17.39	17.94	17.89	17.94	18.30	17.99	16.50	16.67	18.24	21.06															
Electrical machinery, apparatus, and supplies	23.63	24.04	24.75	26.38	26.09	25.26	24.52	25.19	25.35	25.52	25.57	26.18															
Foundry and machine-shop products	25.25	26.73	26.57	26.91	27.72	27.23	27.23	27.01	26.82	27.19	27.96	29.72															
Printing and publishing	30.19	29.88	30.17	30.81	30.85	29.88	30.58	31.00	30.94	30.07	29.92	31.30															
Dyeing and finishing textiles	20.30	20.83	21.26	23.17	21.57	21.68	21.53	22.19	22.19	21.85	21.99	25.00															
Paper and paper goods	20.98	21.22	21.75	23.16	22.52	21.69	20.76	21.04	21.27	22.74	23.87	24.44															
Textile machinery and parts	26.96	26.76	26.97	26.08	25.78	24.12	24.50	25.45	25.46	25.39	27.61	29.45															
Rubber footwear	20.92	21.04	21.91	21.26	21.33	21.43	21.39	21.73	20.26	21.75	24.96	26.37															
Rubber goods, tires, and tubes	20.53	20.68	21.04	23.97	23.96	24.25	24.21	24.54	24.33	24.44	24.96	26.37															
Leather, tanned, curried, finished	25.05	24.74	25.05	23.96	24.25	24.21	24.54	24.33	24.44	24.96	26.37	26.37															
Hosiery and knit goods	15.55	15.72	16.28	15.94	16.44	15.91	16.40	17.75	17.59	17.82	17.94	17.72															
Clothing, men's	17.90	18.22	18.68	16.80	16.40	17.75	18.22	17.97	16.51	16.87	15.55	16.74															
Bread and other bakery products	21.24	20.94	20.81	20.75	21.53	21.05	20.89	20.64	21.32	21.06	21.32	21.56															
Confectionery	17.54	16.04	16.31	15.89	15.17	16.20	14.68	16.42	16.55	15.76	16.50	17.17															
Furniture	19.17	19.09	19.57	19.59	19.47	19.75	20.00	21.43	20.37	22.32	22.18	22.52															
Foot and shoe cut stock and findings	19.09	19.06	18.82	19.20	18.29	17.74	19.71	19.47	18.95	18.55	18.56	20.79															
Silk and rayon goods	17.76	17.46	17.24	15.74	17.43	16.38	17.66	17.66	18.18	17.87	17.78	19.67															
Clothing, women's	14.17	14.44	14.88	15.87	15.35	14.22	13.41	15.17	14.90	14.80	15.03	15.55															

(Arranged in order of average number of employees in 1925, 1926, and 1927)

79.2; woolen and worsted goods, 74.8; paper and paper goods, 66.5; foundry and machine-shop products, 66.0; confectionery, 64.7; electrical machinery, apparatus, and supplies, 59.8; furniture, 57.9; boots and shoes, 56.3; rubber goods, tires, and tubes, 56.3; cotton goods, 41.5; and rubber footwear, 38.5.

In several of the leading industries there were relatively large gains in the amounts of wages paid in 1936 as compared with 1935. The electrical machinery, apparatus, and supplies industry showed a gain in wages paid of 49.9 per cent over the year 1935, but the level of employment and wages had been very low so that in spite of this large gain the average of the index numbers of wages paid in 1936 was only 59.8. In the foundry and machine-shop products industry wages increased 22.0 per cent in 1936 over 1935; in dyeing and finishing textiles, 18.1 per cent; and in textile machinery and parts, 32.4 per cent.

The earnings of employees are affected by the continuity of their employment, by part-time employment, and by changes in wage rates. The average weekly earnings of wage-earners employed in all manufacturing industries combined, and in each of twenty leading industries for each of the years 1925 to 1936, and also by months in 1936, are presented in Table 5. The averages for the years 1925-1934 were derived from the annual census of manufactures for the respective years, and the average weekly earnings for 1935 and 1936, and by months in 1936, were as reported by representative manufacturing establishments in connection with the monthly survey.

The effect of the depression on the earnings of wage-earners is indicated by a comparison of the average weekly earnings during the several years with the corresponding earnings during the base period 1925-1927. For all manufacturing industries combined, there was a decrease from \$23.39, the average for 1925-1927, to the lowest amount, \$17.06 in 1933. There were similar decreases in each of the 20 leading industries. Since 1933 there have been some rather large gains in the average weekly earnings, indicated by the fact that the average for all manufacturing industries combined was \$20.91 in 1936, or a gain of \$3.85 over the average (\$17.06) for 1933. Among the industries showing large gains in 1936 as compared with 1933 were electrical machinery, apparatus, and supplies (\$7.40), foundry and machine-shops (\$6.17), paper and paper goods (\$5.56), textile machinery and parts (\$6.99), and rubber footwear (\$5.05).

For the 20 leading industries the average weekly earnings in 1936, arranged in order from the highest to the lowest, were as follows: printing and publishing, \$30.47; foundry and machine-shop products, \$27.20; textile machinery and parts, \$26.21; electrical machinery, apparatus, and supplies, \$25.21; leather tanned, curried, and finished, \$24.57; paper and paper goods, \$22.12; dyeing and finishing textiles, \$21.96; rubber goods, tires, and tubes, \$21.55; rubber footwear, \$21.54; bread and other bakery products, \$21.09; furniture, \$20.49; boot and shoe cut stock and findings, \$19.02; woolen and worsted goods, \$18.06; silk and rayon goods, \$17.54; men's clothing, \$17.30; boots and shoes, \$17.14; hosiery and knit goods, \$16.76; confectionery, \$16.19; cotton goods, \$15.66; and women's clothing, \$14.82.

In Table 6 index numbers representing the average number of wage-earners employed in the manufacturing industries in each of the 15 leading cities are presented for the years 1925 to 1936, inclusive, and by months in 1936. In each of 11 of the 15 cities the lowest index number of employment in any of the years specified was reported in 1932. In Chicopee, the lowest reported was in 1933, in Fall River and Lynn in 1935, and in Lowell in 1936.

The annual index numbers for 1936, arranged in order from the highest to the lowest, for the several cities, were as follows: Lawrence, 104.4; Peabody, 102.6; Springfield, 89.7; Worcester, 86.9; Fitchburg, 79.3; Cambridge, 75.0; Brockton, 73.7; Haverhill, 72.9; Boston, 70.8; Chicopee, 69.7; New Bedford, 68.7; Holyoke, 66.4; Lynn, 61.7; Lowell, 58.2; and Fall River, 56.5. Although the index number of employment in Lawrence (104.4) exceeded the corresponding index number for each of the other cities specified, it was not quite as high as the index number in Lawrence (108.5) in 1935. In Peabody in 1936 the index number (102.6) was the highest since 1929; in Springfield, the index number (89.7) was also the highest since 1929; and in Worcester (86.9) it was the highest since 1930. On reference to the monthly index numbers in 1936, it will be observed that in nearly all of the

Table 6. — *Index Numbers of Employment in Representative Manufacturing Establishments in 15 Leading Industrial Cities in Massachusetts: By Years 1925-1936, inclusive, and by Months in 1936*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1934, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1935 and 1936.)

CITIES	Average Number of Wage-Earners ¹	ANNUAL INDEX NUMBERS OF EMPLOYMENT (Base, 100.0 = Average Number Employed in 1925, 1926, and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Boston	78,364	98.7	102.9	98.4	96.3	97.7	87.4	74.1	58.7	59.8	64.6	67.4	70.8
Brookton	12,682	103.8	100.6	95.6	95.7	99.3	92.2	84.0	63.0	69.9	76.1	75.8	73.7
Cambridge	21,839	100.4	103.9	95.7	97.7	100.6	88.6	73.8	63.5	69.1	70.5	70.4	75.0
Chicopee	10,171	103.6	102.4	94.0	103.1	105.8	80.4	64.2	49.4	46.9	63.3	69.8	69.7
Fall River	31,146	98.2	100.7	101.1	82.0	84.3	68.5	70.8	55.6	73.0	77.3	52.3	56.5
Fitchburg	8,411	105.5	100.0	94.5	76.7	78.2	68.7	60.5	50.6	60.8	65.5	73.7	72.9
Haverhill	11,080	104.0	107.5	88.5	87.2	75.5	72.9	64.4	64.3	75.2	69.1	70.4	73.9
Holyoke	16,499	103.0	98.9	98.1	88.7	83.5	69.5	62.8	51.3	64.5	57.5	66.7	66.4
Lawrence	25,983	101.1	103.1	95.8	81.0	89.1	79.2	90.4	66.3	82.6	76.5	108.5	104.4
Lowell	20,405	105.7	102.2	92.1	84.5	83.8	68.5	67.2	58.9	65.2	66.3	60.3	58.2
Lynn	20,551	92.2	106.8	101.0	97.7	99.8	86.1	76.3	61.5	59.7	59.6	57.6	61.7
New Bedford	35,308	101.1	99.5	99.4	60.2	91.1	72.9	66.7	46.6	65.9	69.8	71.0	68.7
Peabody	6,085	95.7	99.3	105.0	109.1	104.9	93.5	89.0	79.5	80.8	95.3	95.3	102.6
Springfield	17,989	98.3	108.4	93.3	99.2	103.6	86.8	77.5	62.3	69.4	79.5	78.1	89.7
Worcester	31,047	100.3	101.9	97.8	96.9	102.8	88.7	77.2	54.8	74.6	80.9	82.4	86.9

CITIES	MONTHLY INDEX NUMBERS OF EMPLOYMENT IN 1936 (Base, 100.0 = Average Number Employed in 1925, 1926, and 1927)											
	January	February	March	April	May	June	July	August	September	October	November	December
Boston	65.2	66.7	66.5	68.3	67.3	68.2	68.3	71.9	76.1	77.3	76.9	77.1
Brookton	74.9	78.3	77.8	76.4	67.5	68.9	74.8	78.9	74.3	72.8	76.9	73.8
Cambridge	72.1	71.2	71.3	72.8	73.4	71.2	71.9	74.8	80.2	79.7	79.6	81.7
Chicopee	70.5	70.7	69.0	62.9	61.8	68.0	67.0	68.6	71.6	72.9	73.2	80.5
Fall River	54.0	53.6	52.9	54.4	54.9	56.6	56.2	58.1	60.1	51.9	62.2	62.8
Fitchburg	76.1	75.4	75.7	78.7	79.9	79.2	77.4	77.5	78.2	81.4	85.0	86.7
Haverhill	66.3	73.8	74.3	74.5	74.4	64.8	72.0	78.9	76.0	75.7	70.5	74.0
Holyoke	67.9	70.7	69.9	62.1	56.9	64.8	63.5	66.1	68.9	69.6	71.7	75.1
Lawrence	111.3	111.6	107.0	98.9	100.3	97.5	98.5	101.7	99.3	100.9	108.9	117.4
Lowell	60.4	57.1	56.3	55.1	52.2	52.9	56.9	60.1	61.4	61.5	62.3	61.6
Lynn	55.3	58.3	59.1	61.5	62.4	57.3	63.1	64.7	64.7	64.2	63.2	66.3
New Bedford	69.8	71.7	70.4	68.8	65.8	62.5	64.4	67.2	68.7	69.5	71.1	74.3
Peabody	101.8	101.3	97.3	98.4	96.9	93.8	102.9	105.6	106.6	109.9	109.0	107.5
Springfield	76.7	79.7	78.4	82.9	87.9	89.1	91.6	95.8	93.6	99.0	100.5	100.6
Worcester	83.9	84.3	84.1	84.1	83.7	82.8	84.3	87.9	91.0	92.7	91.9	91.9

¹ Average number of wage-earners employed in 1925, 1926, and 1927 = Base (100).

Table 7. — *Index Numbers of Amounts Paid in Wages in Representative Manufacturing Establishments in 15 Leading Industrial Cities in Massachusetts: By Years, 1925-1936, inclusive, and by Months in 1936*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1934, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1935 and 1936.)

Cities	Average Amounts Paid in Wages per Week ¹	ANNUAL INDEX NUMBERS OF AMOUNTS PAID IN WAGES (Base, 100.0 = Average of the Amounts Paid in Wages in 1925, 1926, 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Boston	\$2,030,987	97.6	104.0	98.4	98.6	99.5	88.0	68.4	49.8	46.0	52.7	57.9	62.6
Brockton	294,147	102.7	101.1	96.2	95.3	100.1	89.0	69.1	50.0	50.3	56.7	57.9	57.7
Cambridge	527,490	99.7	104.6	95.7	98.2	99.8	89.1	69.3	49.7	51.3	57.5	58.8	65.6
Chicopee	232,173	103.9	102.6	93.5	103.3	108.1	79.9	61.0	39.8	32.5	51.1	59.9	63.8
Fall River	558,883	96.9	102.4	100.7	79.0	79.8	64.6	60.5	41.0	53.9	64.6	42.1	45.4
Fitchburg	196,173	102.7	102.8	94.5	81.6	77.5	66.2	50.7	35.9	38.5	46.3	58.5	68.5
Haverhill	258,751	103.0	109.0	88.0	84.6	77.5	66.2	53.6	45.5	49.6	50.9	52.1	56.4
Holyoke	359,585	101.1	101.3	97.6	89.1	87.5	71.1	56.9	43.2	47.7	45.8	58.2	69.5
Lawrence	583,913	101.8	103.1	95.1	80.8	88.5	76.0	80.2	40.2	57.8	55.5	88.7	84.9
Lowell	390,446	104.0	103.2	92.8	86.2	84.0	66.6	61.5	47.8	51.1	55.7	53.6	52.5
Lynn	542,184	92.9	106.2	100.9	96.9	101.1	81.9	62.4	41.4	41.0	45.6	47.0	57.1
New Bedford	698,356	101.9	98.1	100.0	61.8	87.3	67.5	56.0	33.5	44.6	52.2	56.0	55.5
Peabody	150,550	94.6	100.1	105.3	104.8	104.1	89.0	83.6	65.3	76.2	83.8	86.9	85.9
Springfield	457,322	97.3	110.4	92.3	100.0	99.6	85.0	72.3	50.5	52.3	65.8	96.5	86.0
Worcester	819,296	99.1	104.0	96.9	99.2	105.9	83.2	63.8	41.0	52.3	64.2	71.4	80.8

Cities	MONTHLY INDEX NUMBERS OF AMOUNTS PAID IN WAGES IN 1936 (Base, 100.0 = Average of the Amounts Paid in Wages in 1925, 1926, 1927)											
	January	February	March	April	May	June	July	August	September	October	November	December
Boston	58.1	59.5	60.2	61.0	60.5	59.6	60.2	64.1	65.7	66.6	67.3	68.8
Brockton	58.5	67.1	64.4	58.7	43.2	49.7	61.5	65.5	59.2	50.7	46.4	58.4
Cambridge	63.2	61.2	62.0	62.4	63.3	58.5	64.4	67.2	72.0	68.6	68.8	70.0
Chicopee	62.0	62.4	60.6	55.9	57.4	61.4	59.0	61.1	55.9	66.7	74.9	77.0
Fall River	41.8	42.4	41.8	43.6	43.9	44.8	44.1	46.6	47.3	40.0	51.7	56.5
Fitchburg	61.9	60.9	62.2	67.0	65.9	63.3	64.2	63.3	64.4	68.2	73.5	82.3
Haverhill	50.4	58.2	58.9	64.4	60.4	45.1	54.4	63.3	60.7	60.9	48.4	52.0
Holyoke	92.0	91.9	84.9	82.8	53.4	57.5	54.4	58.8	73.7	72.2	65.2	75.0
Lawrence	54.2	46.7	46.7	47.7	45.7	47.8	52.0	84.3	78.7	73.1	83.2	106.8
Lowell	48.5	53.3	54.0	56.7	51.3	51.8	58.3	59.4	56.9	55.3	58.5	65.7
Lynn	56.5	58.0	55.4	53.2	52.0	48.7	50.3	54.4	53.5	50.0	58.9	67.4
New Bedford	94.7	94.4	86.3	88.7	89.4	86.1	95.1	96.7	99.0	104.9	104.2	111.0
Peabody	66.2	71.3	71.3	78.4	81.6	84.1	81.7	88.7	86.0	89.6	94.4	94.4
Springfield	77.7	77.6	76.2	75.8	75.8	76.1	77.4	82.1	82.9	85.3	87.8	94.3
Worcester	77.7	77.6	76.2	75.8	75.8	76.1	77.4	82.1	82.9	85.3	87.8	94.3

¹ Average of the amounts paid in wages per week in 1925, 1926, and 1927 = Base (100).

15 cities there were marked increases in employment during the last six months of the year. This was particularly true of Springfield, Boston, Fitchburg, Chicopee, Lynn and Cambridge.

In Table 7 index numbers, representing the total amounts paid in wages in the manufacturing industries in the 15 leading cities, are presented for the years 1925-1936, inclusive, and by months in 1936. In each of 12 of the 15 leading cities the lowest index number representing the total amount paid in wages in any of the years specified was reported in 1932, and in three cities (Boston, Chicopee, and Lynn) the lowest reported was in 1933. In 1936 the annual index number for 11 of the 15 cities exceeded the corresponding index number for 1935, but in Brockton, Lawrence, Lowell and New Bedford, there were small decreases.

The annual index numbers representing the total amount paid in wages in 1936, arranged in order from the highest to the lowest, for the 15 leading cities, were as follows: Peabody, 95.9; Lawrence, 84.9; Springfield, 82.0; Worcester, 80.8; Fitchburg, 66.5; Cambridge, 65.6; Chicopee, 63.8; Boston, 62.6; Holyoke, 60.5; Brockton, 57.7; Lynn, 57.1; Haverhill, 56.4; New Bedford, 55.5; Lowell, 52.5; and Fall River, 45.4. In 1936 the highest index number in any month of the year was reported in December in each of 13 of the 15 cities. In Brockton the highest was in February, and in Haverhill it was in April.

Wholesale and Retail Trade.—The collection of monthly pay roll data from wholesale and retail trade establishments was first undertaken by the division in November, 1929. From time to time the scope of the survey has been extended, and in December, 1936, reports were received covering 745 wholesale establishments employing 16,125 wage-earners, and 4,218 retail establishments employing 82,959 wage-earners, or a total of 4,963 establishments and 99,084 wage-earners. This survey includes approximately 35 per cent of the total number of wage-earners employed in all wholesale and retail trade establishments in Massachusetts.

The results are made public in monthly press notices, showing the number of reports received, the number of establishments covered, the number of wage-earners employed, and the amount distributed in wages for each of ten principal trade groups, with a further classification by wholesale or retail trade, and "chain stores" and "independent stores," where such classification is applicable. Similar data are also presented for 19 cities which are important trading centers. For several groups of "chain stores" a separate tabulation of the returns by cities is not made, but omission of these returns from the tabulation by cities does not materially affect the comparability of the results.

Information in detail is not presented in this report, but two series of index numbers¹ showing trends of employment and amounts of wages paid for the principal trade groups for the years 1932 to 1936, inclusive, and by months in 1936, are here presented. Because of unavoidable changes which occur in the list of reporting establishments, the index numbers have been computed by the "link-relative" method, and in order that they may be directly comparable with index numbers for other classes of employment which were added to the monthly surveys in 1931 the returns for the month of September, 1931, have been taken as the base (100.0) in computing the index numbers.

On reference to Table 8 it will be observed that the index number representing employment for the year 1936 in wholesale trade was 82.3 as compared with 82.8 in 1935, 84.6 in 1934, 81.6 in 1933, and 85.5 in 1932. Thus no great change in employment in wholesale trade has occurred during the past five years. In retail trade, employment in 1936 also averaged slightly below 1935 (85.7 as compared with 85.9) in both of which years employment was somewhat below the level of the three previous years. Changes from month to month were more marked in retail trade than in wholesale trade. During the second quarter of the year employment was at a higher level than during the first quarter. Employment declined somewhat in July and slightly more in August (represented by index number 81.0). Some improvement was noted in September, further gains were recorded in October and November, and the Christmas trade brought the level of employment in retail trade in December to 100.9. This indicates that the retail stores had on their pay rolls in December about the same number that they formerly considered normal for an entire year. The seasonal changes in retail trade are

¹ See Tables 8 and 9, and also charts, pages 91 and 92, Plates 10 and 11.

Table 8. — Index Numbers of Employment in Representative Establishments in Wholesale and Retail Trade in Massachusetts — All Trade Groups Combined and Eleven Leading Groups: By Years 1931-1936, inclusive, and by Months in 1936

(Source: — Monthly Survey of Representative Establishments in Wholesale and Retail Trade)
(Base—September, 1931 = 100)

YEARS AND MONTHS	Wholesale and Retail Trade Combined	WHOLESALE			RETAIL				
		Total Wholesale Trade	Auto- mobiles Accesso- ries, Gas, and Oil	Groceries Provisions Meats and Fish	Total Retail Trade	Auto- mobiles Accesso- ries, Gas and Oil	Candy Soda and Drugs	DEPARTMENT AND DRY GOODS STORES	
								"Chain"	Inde- pendent
1931 . . .	102.0	96.4	100.3	97.7	103.4	96.4	101.0	109.5	108.4
1932 . . .	91.4	85.5	87.9	86.7	92.9	82.0	91.9	105.1	93.2
1933 . . .	88.3	81.6	87.2	84.1	90.1	77.3	89.2	92.6	91.0
1934 . . .	91.8	84.6	102.6	86.6	93.4	87.4	94.7	100.6	93.9
1935 . . .	85.9	82.8	96.9	85.0	85.9	85.5	95.1	100.9	90.5
1936 . . .	85.7	82.3	94.6	84.5	85.7	82.1	98.1	102.2	87.0
<i>1936</i>									
January . .	82.9	81.2	99.1	83.9	82.6	83.3	92.8	89.3	82.6
February .	83.1	80.9	101.3	82.2	82.9	83.1	95.6	90.8	81.0
March . . .	82.5	80.8	95.9	83.4	82.2	83.9	96.7	91.2	80.7
April . . .	85.6	80.6	91.6	84.1	86.1	86.8	99.1	99.6	87.3
May	85.3	81.9	92.7	84.3	85.4	87.2	99.4	97.4	88.3
June	85.2	82.1	90.9	84.6	85.2	85.5	94.7	97.3	84.7
July	83.5	83.7	91.0	87.7	82.6	83.5	95.1	98.1	80.5
August . .	82.2	83.3	90.4	86.6	81.0	80.7	96.5	98.1	77.1
September .	85.2	83.8	91.9	86.4	84.7	77.8	99.5	101.4	85.9
October . .	86.3	83.1	95.1	83.3	86.2	78.0	99.9	102.2	86.8
November .	87.9	83.0	95.2	83.5	88.2	77.2	101.5	109.8	89.3
December .	98.4	83.4	99.8	83.8	100.9	77.9	105.8	151.5	119.5

YEARS AND MONTHS	RETAIL						
	Fuel and Ice	Furniture and Radios	GROCERIES, PROVISIONS MEATS AND FISH		LUNCHROOMS AND RESTAURANTS		Wearing Apparel and Accesso- ries
			"Chain"	Independent Stores	"Chain"	Inde- pendent	
1931 . . .	111.1	97.7	99.7	98.5	101.3	101.4	105.7
1932 . . .	102.1	81.4	96.2	92.2	98.0	90.0	92.1
1933 . . .	102.1	73.7	93.8	94.6	98.3	80.1	91.4
1934 . . .	106.3	76.4	98.2	95.9	107.2	80.4	96.2
1935 . . .	94.0	74.4	98.8	94.6	102.3	74.0	99.0
1936 . . .	93.5	75.9	101.0	95.1	108.6	70.2	98.8
<i>1936</i>							
January . .	97.8	73.0	101.1	94.7	107.9	69.7	93.6
February .	116.3	72.9	100.9	93.7	106.9	69.4	89.9
March . . .	94.8	74.5	99.4	93.8	108.0	71.0	92.5
April . . .	86.1	74.5	99.7	94.6	107.6	71.4	105.7
May	85.8	75.3	98.7	94.7	107.6	72.8	99.5
June	86.5	74.7	100.4	94.2	109.1	75.8	102.6
July	86.6	72.5	102.3	94.1	109.9	67.5	90.5
August . .	83.3	73.6	101.0	93.3	106.6	66.9	87.3
September .	89.4	76.9	100.7	96.0	109.5	68.1	98.3
October . .	94.5	80.9	101.0	97.3	109.8	70.2	104.5
November .	98.2	80.8	101.8	97.7	109.7	70.3	106.7
December .	102.6	81.6	104.4	97.6	110.5	69.1	114.4

much more evident in the chain and independently owned department and dry goods stores and wearing apparel stores. The marked fluctuations in the index numbers of employment in the retail sales of fuel and ice were due to seasonal demands for fuel during the fall and winter months.

Index numbers representing the amount of wages paid to employees in the various trade groups are presented in Table 9. In general, the fluctuations in the amount of wages paid in the principal trade groups corresponded closely with the fluctuations in the number of persons employed from month to month, except that when the regular force of employees was supplemented for temporary sales the increases in the amounts of wages paid were not proportionately as large as the increases in the number of persons employed because salespeople employed temporarily usually work part time and do not receive as high rates of pay as those who are permanently employed.

Table 9. — Index Numbers of Amounts Paid in Wages in Representative Establishments in Wholesale and Retail Trade in Massachusetts — All Trade Groups Combined and Eleven Leading Groups: By Years 1931–1936, inclusive, and by Months in 1936

(Source: — Monthly Survey of Representative Establishments in Wholesale and Retail Trade)
(Base—September, 1931=100)

YEARS AND MONTHS	Wholesale and Retail Trade Combined	WHOLESALE			RETAIL				
		Total Whole- sale Trade	Auto- mobiles Accesso- ries, Gas, and Oil	Groceries Provisions Meats and Fish	Total Retail Trade	Auto- mobiles Accesso- ries, Gas and Oil	Candy Soda and Drugs	DEPARTMENT AND DRY GOODS STORES	
								"Chain"	Inde- pendent
1931 . . .	100.5	96.3	99.1	97.3	102.0	94.2	103.0	107.9	107.2
1932 . . .	84.0	79.4	94.0	81.4	86.2	75.1	84.1	88.8	87.6
1933 . . .	76.0	71.6	74.4	76.7	80.1	61.8	74.3	76.9	81.9
1934 . . .	80.9	75.1	81.5	80.4	85.6	69.6	77.4	82.3	88.1
1935 . . .	80.9	75.6	88.2	79.6	84.6	70.1	79.4	82.7	87.1
1936 . . .	82.0	77.2	91.1	79.8	85.8	67.4	80.5	86.9	85.0
<i>1936</i>									
January . .	78.9	74.1	91.0	77.2	82.5	66.9	78.7	75.2	80.8
February .	79.5	73.8	96.1	75.0	83.5	66.3	79.8	75.8	77.6
March . . .	78.9	74.9	89.9	78.9	82.2	67.9	80.0	75.7	78.5
April . . .	81.4	74.5	88.1	78.4	85.9	71.8	81.8	82.5	84.2
May	82.1	76.7	90.0	80.4	86.0	73.3	80.6	83.1	86.7
June	82.0	77.4	89.1	80.1	85.8	69.9	78.8	84.7	83.6
July	81.1	78.5	88.2	82.3	84.2	67.6	79.1	84.7	80.8
August . . .	80.1	78.6	87.9	81.0	82.8	67.1	77.4	86.2	78.1
September .	82.1	79.6	89.3	82.9	85.2	65.2	79.6	87.1	85.4
October . .	82.4	79.0	92.2	80.1	85.9	63.2	81.0	88.7	85.3
November .	84.0	79.2	93.5	80.5	88.1	64.5	82.1	95.1	88.2
December .	90.9	80.6	97.7	81.3	97.1	65.3	86.6	123.6	111.1

YEARS AND MONTHS	RETAIL						
	Fuel and Ice	Furniture and Radios	GROCERIES, PROVISIONS MEATS AND FISH		LUNCHROOMS AND RESTAURANTS		Wearing Apparel and Accesso- ries
			"Chain"	Independent Stores	"Chain"	Inde- pendent	
1931 . . .	109.4	97.4	99.3	99.2	103.1	98.8	104.2
1932 . . .	91.4	76.0	90.7	88.3	91.6	83.1	85.7
1933 . . .	85.4	62.2	87.3	82.6	85.6	68.6	76.3
1934 . . .	88.8	67.1	93.2	85.3	89.4	69.5	83.8
1935 . . .	78.8	66.9	94.3	86.4	88.9	66.0	85.9
1936 . . .	78.6	69.0	96.1	88.1	94.1	67.0	88.1
<i>1936</i>							
January . .	82.3	64.3	93.6	86.8	93.4	65.2	84.5
February .	108.2	65.8	95.4	86.2	91.1	65.4	80.0
March . . .	79.0	67.8	95.1	86.7	92.8	65.8	82.3
April . . .	72.4	66.9	97.8	86.8	93.3	67.9	91.3
May	68.5	68.4	97.1	87.1	92.9	68.2	88.8
June	71.2	67.0	97.5	88.1	94.0	69.7	90.4
July	72.8	66.7	98.8	87.9	94.9	64.3	83.5
August . . .	70.0	67.0	97.1	87.5	92.3	65.5	80.9
September .	75.7	68.9	95.2	88.1	94.7	66.7	88.2
October . .	76.7	72.7	94.0	90.0	95.4	67.6	93.1
November .	80.0	75.8	94.2	91.1	97.1	69.6	94.8
December .	86.4	76.3	97.1	91.2	97.7	68.2	99.0

Building Construction. — The collection of monthly pay-roll data from building contractors was first undertaken by this division in April, 1927. The information called for includes the following items: number of building tradesmen employed during the week including the 15th of the month; total number of hours worked; and the amount paid in wages. Reports were received each month in 1936 from about 670 building contractors who employed in November, the peak month, nearly 7,200 building tradesmen. Nearly all of the important general contractors and sub-contractors in the building industry are included in the list of those reporting each month. Pay-roll data are furnished by individual projects or groups of projects within a single city or town, and the returns are presented in the monthly press announcements by classes of work done and also by principal cities and towns.

Six series of index numbers are presented in Table 10. In computing these index numbers the average for the year, 1928, was taken in each case as the base (100). According to the pay-roll records furnished by contractors who employed approximately 30 per cent of the total number of building tradesmen in Massachusetts, building construction in this state during the period under review (1928 to 1936) reached the lowest point in 1933, in which year the index numbers in each of the several series were as follows: number of building tradesmen employed, 27.9; amount paid in wages, 16.6; number of man-hours worked, 21.0; average weekly hours per man, 74.8; average weekly earnings per man, 59.3; and average hourly earnings per man, 79.4.

In each of the series there were successive increases in the index numbers in each of the years, 1934, 1935, and 1936, with a single exception — a slight decrease in the average hourly earnings per man in 1936. These increases since 1933, however, were relatively small and in 1936 building construction in Massachusetts was still at a very low level, as represented by the following index numbers: number of building tradesmen employed, 36.4; amount of wages paid, 25.2; average number of man hours worked, 31.2; average weekly hours worked per man, 85.5; average weekly earnings per man, 68.5; and average hourly earnings per man, 79.9.

Marked seasonal fluctuations in the monthly index numbers were reported in 1936, as follows: number of building tradesmen employed — highest, 46.1 in November, and lowest, 22.2 in February; amount paid in wages — highest, 32.7 in November, and lowest, 14.1 in February; number of man-hours worked — highest, 39.8 in November, and lowest, 17.4 in February; average weekly hours per man — highest, 91.4 in May, and lowest, 77.9 in March; average weekly earnings per man — highest, 73.7 in September, and lowest, 61.0 in April; and average hourly earnings per man — highest, 83.1 in December and lowest, 75.1 in April.

Table 10. — Index Numbers of Employment and Earnings of Building Tradesmen in Massachusetts: By Years 1929–1936, inclusive, and by Months in 1936

(Source — Monthly Survey of Building Construction)

YEARS AND MONTHS	INDEX NUMBERS (Average for the Year 1928 = 100.0) ¹					
	Number of Tradesmen	Amount Paid in Wages	Number of Man-hours	Average Weekly Hours per Man	Average Weekly Earnings per Man	Average Hourly Earnings per Man
<i>1928 (Base)</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
1929	103.0	105.3	102.4	98.7	101.3	102.6
1930	94.6	97.2	92.7	97.9	102.8	105.0
1931	66.8	62.0	59.5	88.9	91.5	102.8
1932	41.2	29.2	32.1	77.8	70.4	90.6
1933	27.9	16.6	21.0	74.8	59.3	79.4
1934	31.4	19.9	25.0	79.5	63.4	79.8
1935	35.1	22.8	28.6	80.6	64.4	80.1
1936	36.4	25.2	31.2	85.5	68.5	79.9
<i>1936</i>						
January	27.3	18.2	22.9	83.9	66.5	79.2
February	22.2	14.1	17.4	78.7	63.3	80.5
March	24.5	15.1	19.0	77.9	61.6	79.0
April	33.4	20.4	27.0	81.2	61.0	75.1
May	35.2	25.3	32.0	91.4	71.6	78.3
June	37.4	25.5	32.2	86.5	68.1	78.6
July	40.1	28.6	35.2	88.3	71.4	80.6
August	41.2	29.5	36.2	88.3	71.5	80.7
September	43.0	31.7	39.0	91.1	73.7	80.7
October	44.4	30.9	37.6	85.1	69.6	81.6
November	46.1	32.7	39.8	86.9	70.9	81.6
December	41.6	30.1	36.1	87.2	72.5	83.1

¹ This survey was first undertaken in April, 1927.

Highway Construction. — In 1931, the monthly surveys were extended to include highway construction. In 1936 reports were received each month from 100 or more contractors who employed in September (the peak month) 1,600 workmen. The reports received cover approximately 90 per cent of the total number of workmen employed on all highway construction done under contract in Massachusetts during the year, exclusive of those projects paid for from federal funds.

Index numbers representing employment and amounts paid in wages to workmen employed on highway construction are presented in Table 11. The index number representing employment in 1936 was slightly greater than the corresponding index number for 1935, but not as great as the index numbers for the three years prior thereto. In 1936 there were very marked fluctuations in the numbers of workmen employed on public highway work by private contractors, the index numbers having varied from the lowest point, 10.9 in February, to 49.8 in September, indicating that there was not a great deal of unfinished work carried over to the spring months, as there was no real gain in employment until April. The amount paid in wages on highway work was much greater in 1936 than in each of the three preceding years, principally because of the increase in hourly earnings of those engaged on this type of work.

Table 11. — Index Numbers of Employment and of Amounts Paid in Wages on Highway Construction in Massachusetts: By Years 1932 to 1936, inclusive, and by Months in 1936

(Source — Monthly Survey of Highway Construction)

YEARS AND MONTHS	INDEX NUMBERS (September, 1931 = 100.0)			
	Workmen Employed on Public Highway Work by Private Contractors	Manual Workers Employed by City and Town Street, Highway, and Public Works Departments ¹	Workmen Employed on Public Highway Work by Private Contractors	Manual Workers Employed by City and Town Street, Highway, and Public Works Departments ¹
	EMPLOYMENT		AMOUNTS PAID IN WAGES	
1932	41.9	75.2	47.1	70.8
1933	33.3	69.1	33.6	57.7
1934	36.1	70.7	37.3	59.0
1935	27.3	64.3	33.3	60.4
1936	32.7	72.5	44.1	66.9
1936				
January	11.3	70.1	14.2	63.7
February	10.9	126.8 ²	11.2	99.0 ²
March	12.6	64.6	17.8	61.1
April	23.7	68.9	33.0	65.1
May	38.9	69.4	54.1	66.8
June	38.9	70.8	58.0	67.6
July	39.2	68.4	51.4	65.8
August	44.7	69.9	64.7	65.9
September	49.8	68.6	66.3	64.7
October	41.4	66.7	53.6	62.6
November	43.9	66.0	62.0	62.7
December	36.5	60.0	40.8	58.0

¹ In connection with the monthly survey of municipal employment, pay-roll data were obtained covering manual workers employed in the street, highway and public works departments in nearly 100 of the principal municipalities in Massachusetts. These index numbers (appearing also in Table 13) are here presented for purposes of comparison with corresponding index numbers representing employment and earnings of workmen employed on public highway work by private contractors.

² The large increase in the index number in February, 1936, was the result of the temporary employment of large numbers of men in the removal of snow and ice.

Public Utilities. — The monthly survey of employment by public utility companies was first undertaken in January, 1929. During the past three years the lists of companies reporting have been nearly identical, and changes were principally in the nature of mergers or consolidations which reduced the number of companies without changing the coverage. All employees, both manual and clerical (except salaried executives), on the pay rolls of the companies in Massachusetts are included in the reports.

In December, 1936, reports were received from 123 companies which together employed a total of 47,478 wage earners. These 123 companies comprised six steam railroads, nine street and electric railways, 29 passenger bus companies, and 79 gas and electric companies. Three of the six steam railroads are engaged in interstate transportation, and each of these three furnishes pay roll data covering its operations within Massachusetts only. The street and electric railways which no longer operate street cars are included under the passenger bus group. Several of the street railways now operate both street cars and busses, but it is not possible to make a further segregation of pay rolls of such companies.

Two series of index numbers are presented in Table 12, one of which relates to employment and the other to total amounts paid in wages to employees in each of the four classes of public utility companies. The trends of employment during the six years, 1930-1936, inclusive, for each of these four classes of utilities are shown, graphically, in a chart which appears in the appendix to this report.¹

Table 12. — Index Numbers of Employment and of Amounts Paid in Wages by Public Utility Companies in Massachusetts: By Years, 1930 to 1936, inclusive, and by Months in 1936

(Source — Monthly Survey of Public Utility Companies)

YEARS AND MONTHS	INDEX NUMBERS (Average for the Year 1930 = 100.0)				
	All Classes Combined	Steam Railroads	Street and Electric Railways	Passenger Bus Companies ¹	Gas and Electric Companies
EMPLOYMENT					
1930 (Base)	100.0	100.0	100.0	100.0	100.0
1931	91.4	86.5	96.7	100.4	96.1
1932	81.6	74.4	90.2	95.5	88.5
1933	77.6	71.5	81.2	101.2	85.2
1934	80.3	74.2	80.5	118.6	88.7
1935	78.9	71.1	79.2	125.4	89.3
1936	81.1	73.9	79.9	131.1	91.3
1936					
January	78.5	71.4	77.6	127.5	88.4
February	86.7	86.4	80.4	128.7	88.6
March	78.9	71.5	77.9	128.9	89.4
April	80.8	74.2	78.3	130.4	91.1
May	80.8	73.9	79.1	130.9	90.9
June	81.1	73.0	81.1	130.3	92.1
July	80.4	71.6	80.3	132.0	92.6
August	80.0	70.5	80.7	131.7	92.9
September	81.3	72.7	81.4	134.6	92.7
October	81.6	73.3	81.7	133.3	92.4
November	81.4	73.3	81.3	133.6	92.2
December	81.5	74.5	79.1	130.7	92.3
AMOUNTS PAID IN WAGES					
1930 (Base)	100.0	100.0	100.0	100.0	100.0
1931	89.5	83.7	95.3	99.2	94.4
1932	73.7	63.4	83.6	85.3	82.8
1933	66.1	58.9	69.3	85.1	74.5
1934	70.4	63.0	70.8	94.5	80.5
1935	73.5	66.4	72.5	104.1	83.2
1936	77.8	71.2	75.9	111.9	88.0
1936					
January	74.8	68.7	73.0	105.2	83.9
February	83.1	81.8	78.8	108.5	86.2
March	76.8	71.0	74.4	109.3	85.8
April	78.3	73.2	73.6	111.7	88.3
May	77.4	71.6	74.4	110.8	87.2
June	76.5	68.8	75.6	113.0	87.6
July	77.0	68.6	75.9	114.5	89.3
August	76.4	67.2	76.8	116.2	88.6
September	77.8	70.0	76.8	118.0	88.7
October	77.6	69.2	77.1	113.0	89.6
November	78.8	71.5	78.2	110.8	89.2
December	79.6	73.2	75.8	110.2	91.5

¹ Passenger bus companies were first canvassed in April, 1931. In computing index numbers for these companies the same index numbers as those for street railway companies were taken as the initial index numbers of this series (as of April, 1931) and thereafter the index numbers were separately computed.

There were increases in employment in each of the four classes of public utilities in 1936, as compared with 1935. In all except the passenger bus companies, gains in 1936 over 1935 were not large, and employment for the past four years has shown no marked change. The index number representing employment by passenger bus companies in 1936 was 131.1, as compared with 125.4 in 1935 and 95.5 in 1932. The large increases in the index numbers representing employment by steam railroad and street and electric railway companies in February, 1936, were due to the temporary employment of large numbers of men in the removal of snow and ice. With these exceptions there were no important changes from month to month.

¹ See chart, page 94, Plate 14.

In each of the four classes of public utilities there were increases in 1936 over 1935 in the index numbers representing the amounts paid in wages, as follows: steam railroads, from 66.4 to 71.2; street and electric railways, from 72.5 to 75.9; passenger bus companies, from 104.1 to 111.9; and gas and electric companies, from 83.2 to 88.0. Except for rather large increases in the amount of wages paid in February, 1936, by steam railroads and street and electric railways on account of removal of snow and ice, there were no important fluctuations from month to month in the amounts paid in wages in 1936.

Municipal Employment.—Reports relative to employment by municipalities in the commonwealth have been collected each month, beginning with April, 1931. These reports cover mechanics, workmen, laborers, clerical, and other municipal employees who receive their pay weekly in accordance with General Laws, Chapter 149, section 148. Each city or town reporting furnishes information by departments. In order to show the marked seasonal tendencies in connection with road and highway construction work by municipalities, the pay rolls for manual workers

Table 13.—Index Numbers of Employment and of Amounts Paid in Wages in Municipal Employment in Massachusetts: By Specified Classes of Employment; by Years, 1932 to 1936, inclusive, and by Months in 1936
(Source — Monthly Survey of Municipal Employment)

YEARS AND MONTHS	INDEX NUMBERS (Base — September, 1931 = 100)				
	MANUAL WORKERS			Clerical and Other Non-Manual Employees Paid Weekly	Total — All Classes Specified
	Street, Highway and Public Works Departments	Other Departments	Total — All Departments		
EMPLOYMENT					
1931, September (Base)	100.0	100.0	100.0	100.0	100.0
1932	75.2	108.1	86.5	100.7	88.6
1933	69.1	94.0	77.7	104.4	81.5
1934	70.7	87.3	76.4	108.3	80.9
1935	64.3	79.9	69.6	115.3	75.9
1936	72.5	75.4	71.3	116.4	79.1
1936					
January	70.1	68.0	68.5	117.4	75.4
February	126.8 ¹	69.2	100.2	115.8	102.9 ¹
March	64.6	68.0	63.7	115.6	72.5
April	68.9	74.4	68.7	114.5	76.5
May	69.4	81.2	71.6	114.2	78.9
June	70.8	80.0	71.9	114.5	79.2
July	68.4	83.1	71.7	116.5	79.4
August	69.9	81.3	71.9	117.2	80.0
September	68.6	77.1	69.5	116.1	77.8
October	66.7	75.6	67.8	118.8	76.9
November	66.0	74.6	67.0	118.7	76.2
December	60.0	72.5	62.7	117.4	72.4
AMOUNTS PAID IN WAGES					
1931, September (Base)	100.0	100.0	100.0	100.0	100.0
1932	70.8	89.1	77.1	101.8	80.9
1933	57.7	76.5	64.2	99.7	69.5
1934	59.0	75.2	64.9	102.8	70.6
1935	60.4	74.3	65.3	116.9	72.8
1936	66.9	73.5	67.6	119.7	76.1
1936					
January	63.7	68.4	65.0	119.1	72.9
February	99.0	69.2	84.5	119.2	90.5
March	61.1	67.8	61.9	120.0	71.5
April	65.1	72.5	66.0	118.4	74.7
May	66.8	77.5	68.9	117.5	77.0
June	67.6	77.3	69.3	117.5	77.3
July	65.8	80.4	69.5	119.4	77.7
August	65.9	78.1	68.7	120.0	77.1
September	64.7	74.3	66.5	119.8	75.2
October	62.6	73.0	64.5	122.0	74.1
November	62.7	72.4	64.6	122.2	74.0
December	58.0	71.0	61.3	121.6	71.1

¹ The large increase in the index number in February 1936, was the result of the temporary employment of large numbers of men in the removal of snow and ice.

in the various departments coming under this general classification are tabulated separately from the pay rolls for workers in other departments. Pay roll data relative to police, fire, and school departments, and hospitals maintained from public funds are not included in this survey.

During 1936 reports were received each month from nearly 100 municipalities in which reside over 80 per cent of the population of the state. The reports covered upwards of 21,000 employees each month. The maximum was nearly 31,000 in February, due to the temporary employment of many thousands of workers on snow and ice removal during the middle week in that month. The January returns had already shown a large gain in employment when compared with December, 1935, which gains were also due to similar temporary work which affected principally manual workers in the street, highway, and public works departments. Except in these two months, changes from month to month were not large or as large as the normal seasonal changes. During the four months May–August between 23,000 and 24,000 were employed. In those towns from which no reports were obtained there is a comparatively small number of municipal employees and their inclusion would not add sufficiently to the value of the survey to warrant their being canvassed each month.

Two series of index numbers are presented in Table 13, one of which relates to employment of municipal employees and the other to the total amount paid them in wages for one week in each month, beginning with September, 1931, the returns for which month have been taken as the base (100) in computing the index numbers. A chart, showing the trends of employment and of amounts paid in wages, appears in the appendix.

For manual workers (all departments combined) there was a slight increase in the index number representing average employment for the year, from 69.6 in 1935 to 71.3 in 1936, and for non-manual workers (paid weekly) from 115.3 in 1935 to 116.4 in 1936. The index number representing the average of the amounts paid in wages for the year 1935 was 65.3, and for 1936 it was 67.6. In the non-manual workers group the index numbers were, respectively, 116.9 and 119.7.

Agriculture. — The number of persons employed in agriculture in Massachusetts constitutes only slightly over three per cent of the total number of persons gainfully employed in all industries in the state; nevertheless, an endeavor has been made to secure monthly reports from a representative list of employers of agricultural labor. The number of farms, market gardens, dairies, etc., in connection with which three or more persons are employed, is very small, and it is not feasible to attempt to secure a large number of reports each month from one-man or two-man farms. During the past year the number of employers of agricultural labor reporting has been about 120. The December returns included the following: fruit growers, 36; nurseries, wholesale florists and landscape gardeners, 34; dairy and stock farms, 27; farms and market gardens, 18; and cranberry growers, 5. The total number of wage-earners covered by the reports in September, the peak month, was 3,738, and the amount paid in wages was \$50,449 during the week including September 15.

The collection of employment and pay-roll data from employers of agriculture was first undertaken by the division in September, 1931. For all branches of agricultural labor, combined, the index number representing employment in 1936 was 49.4, based on the number employed in September, 1931, taken as 100. During the year there were the usual seasonal fluctuations in employment. These seasonal fluctuations result from a combination of factors. Thus, in each of the four principal classes of agricultural employment, additional help is employed during the spring months, more particularly at the nurseries and by wholesale florists and landscape gardeners. On the dairies and stock farms and market gardens, additional help is employed mostly during the summer months. In cranberry growing, after the preparatory work in the spring, few temporary laborers are employed, but as soon as the crop is ready for picking, large numbers of men and women are employed in picking, sorting and packing. In fruit growing, some additional help is employed in the spring in spraying, and again in the fall in picking and packing the fruit. Thus numbers of persons employed and amounts of wages paid reach their lowest point during the winter months.

Table 14. — *Index Numbers of Employment and of Amounts Paid in Wages in Employment of Agricultural Labor in Massachusetts, September, 1931, to December, 1936, inclusive, by Months*

(Source — Monthly Survey of Employment of Agricultural Labor)

MONTHS	INDEX NUMBERS (September, 1931 = Base 100.0)					
	1931	1932	1933	1934	1935	1936
EMPLOYMENT						
January	—	38.1	33.8	32.7	34.6	30.8
February	—	36.2	32.8	33.1	33.6	29.7
March	—	38.3	34.1	35.0	35.0	29.4
April	—	61.5	53.8	55.0	54.7	47.7
May	—	82.2	67.3	66.8	64.6	57.1
June	—	74.1	68.8	69.8	70.5	55.5
July	—	74.9	65.8	75.5	70.8	54.7
August	—	71.5	64.4	63.9	65.2	52.9
September	100.0	119.1	84.3	91.4	97.9	96.9
October	83.1	110.9	92.7	74.0	64.5	59.4
November	57.3	62.8	56.1	55.1	46.6	43.9
December	49.2	49.7	42.6	39.8	37.8	34.2
<i>Average for the Year</i>	—	68.3	58.0	57.7	56.3	49.4
AMOUNTS PAID IN WAGES						
January	—	37.3	26.2	21.3	22.1	20.7
February	—	34.8	25.1	21.4	22.2	19.9
March	—	35.9	24.4	22.6	22.9	19.6
April	—	48.2	35.7	32.2	31.6	28.8
May	—	58.7	44.8	38.2	38.3	35.3
June	—	51.4	44.8	38.5	37.9	32.0
July	—	49.0	41.5	39.3	37.2	31.5
August	—	46.5	40.5	34.7	35.2	30.5
September	100.0	54.6	46.8	42.3	42.6	48.9
October	81.5	56.7	55.7	37.9	33.8	33.4
November	62.2	39.9	37.7	31.5	26.3	28.0
December	55.4	34.6	25.0	25.0	23.0	23.1
<i>Average for the Year</i>	—	45.6	37.4	32.1	31.1	29.3

Office and Miscellaneous Classes of Employment. — In order that the monthly surveys might be more fully representative of all important classes of employment in the state, a number of somewhat unrelated classes, not previously canvassed, were added to the list in 1931. In December, 1936, returns were received from 676 employers, representing 869 companies or establishments in which 37,030 wage-earners were employed. Under this general heading the returns have been classified under six major groups and 12 sub-groups or classes of employment.

The group "amusement and recreation" includes clubs and associations, and theatres. Under "hotel employment" the data are presented separately for hotels (as such) and for hotel restaurants when operated as independent units. "Institutional employment" includes employment in hospitals and in schools and colleges, and includes office staff and building and grounds employees, but does not include professional or semi-professional employees in hospitals or the teaching staff in schools and colleges. "Office employment" includes clerical employees in banks and trust companies, and in insurance companies and agencies, but does not include officials, managerial staff, or insurance agents. "Personal service" includes employment in dyeing and cleaning establishments and in laundries. "Trucking and handling" includes employees of express and transfer companies which operate over stated routes and maintain regular services principally in carrying small shipments, and employees of companies which are engaged in teaming, trucking, and handling material in large quantities and in stevedoring.

In nine of the 12 classes of employment specified in Table 15 the index numbers representing employment in 1936 exceeded the corresponding index numbers in 1935, and in ten of the 12 classes the index numbers of amounts paid in wages similarly were greater. The largest gains were in the class comprising clubs and associations, and next in order was the class comprising employees in hospitals. The decreases which occurred were small. The usual seasonal decreases in employment and amounts paid in wages occurred during the summer months in clubs and associations, hotel restaurants, and schools and colleges. Seasonal increases occurred during these same months in hotels, hospitals, and dyers and cleaners. Employment by the express and transfer companies was greatest during the last quarter of the year, with much greater employment in December (due to the Christmas trade) than during any other month in the year.

Table 15. — Index Numbers of Employment and Amounts Paid in Wages in Twelve Miscellaneous Classes of Employment in Massachusetts: By Years, 1932 to 1936, inclusive, and by Months in 1936

(Source: — Monthly Survey of Employment in Miscellaneous Classes of Employment)

YEARS AND MONTHS	Index Numbers (Base — September, 1931 = 100.0)									
	AMUSEMENT AND RECREATION		HOTEL EMPLOYMENT		INSTITUTIONAL EMPLOYMENT		OFFICE EMPLOYMENT		PERSONAL SERVICES	
	Clubs and Associations	Theatres	Hotels	Hotel Restaurants ¹	Hospitals	Schools and Colleges	Banks and Trust Companies	Insurance Companies and Agencies	Dyers and Cleaners ²	Laundries
1932										
January	97.1	72.9	92.1	88.2	99.3	96.8	93.6	99.8	88.8	95.6
February	88.9	49.2	77.8	79.3	97.9	82.4	87.1	100.4	89.3	93.9
March	86.7	50.9	72.4	73.6	99.4	82.4	86.8	105.3	89.4	93.9
April	89.4	46.7	73.0	73.9	99.5	77.5	87.1	107.9	87.7	92.1
May	89.4	45.3	77.8	80.4	107.9	77.5	88.0	110.4	93.4	91.4
June										
July										
August										
September										
October										
November										
December										
1933										
January	91.0	47.3	75.0	81.9	101.9	86.3	87.7	108.5	75.5	87.8
February	91.5	47.6	75.2	81.3	102.6	88.6	88.2	108.7	75.2	86.1
March	91.8	47.2	76.0	80.6	102.8	89.5	87.4	109.1	84.7	90.4
April	89.2	47.3	74.2	81.0	104.8	91.0	87.1	109.2	100.1	91.8
May	89.5	46.3	73.4	81.8	106.3	90.5	87.3	112.5	102.5	92.5
June	86.6	45.2	74.0	79.2	106.8	75.7	87.0	111.7	107.9	93.2
July	80.4	42.0	75.2	75.2	113.2	47.8	87.4	112.4	106.6	94.0
August	79.3	41.2	89.9	72.4	113.5	49.2	89.8	111.4	104.6	92.9
September	87.2	42.8	83.9	78.7	111.0	64.2	89.4	110.0	100.4	92.9
October	96.0	43.4	75.9	81.0	110.5	73.5	88.2	110.2	97.9	92.3
November	94.3	46.5	74.8	84.7	110.7	85.8	88.3	110.1	92.4	91.7
December	96.1	46.6	72.8	86.5	111.1	87.3	88.4	110.5	83.0	91.5
1934										
January	93.1	75.7	89.1	79.8	98.4	76.3	89.5	99.7	77.0	87.2
February	78.8	48.5	70.2	62.5	95.1	57.7	81.2	102.6	66.2	78.6
March	78.0	49.8	76.5	84.9	102.1	54.5	81.2	106.9	78.9	81.3
April	74.0	47.5	82.5	78.6	108.4	53.2	82.6	110.5	89.7	70.7
May	84.2	45.6	83.7	85.9	117.9	53.2	83.2	115.1	89.7	79.4
June										
July										
August										
September										
October										
November										
December										
1935										
January	82.6	48.4	81.9	88.8	112.1	58.0	82.5	115.7	66.5	75.7
February	84.0	49.0	82.9	89.3	113.6	59.7	82.9	114.3	66.0	74.0
March	83.9	48.3	85.0	85.3	113.6	60.4	83.1	115.4	72.5	75.9
April	83.8	48.6	84.9	87.8	116.0	61.7	83.1	118.1	94.5	79.7
May	84.0	47.6	84.9	89.0	117.2	61.4	83.3	118.5	97.5	79.4
June	80.0	45.9	82.7	85.1	119.2	52.6	83.3	118.3	102.1	83.6
July	77.9	44.0	91.5	77.4	122.8	38.0	84.0	115.6	95.7	82.8
August	79.7	41.8	91.6	75.0	121.8	39.9	83.6	114.6	87.9	80.5
September	81.9	41.5	84.7	80.3	119.5	47.5	83.6	112.2	89.0	80.0
October	90.3	42.2	79.5	85.2	118.6	53.5	83.0	112.3	84.2	79.1
November	90.7	44.8	76.9	93.4	119.5	59.2	83.0	112.3	76.5	78.2
December	91.0	45.5	77.3	94.6	121.4	58.9	82.9	113.0	71.5	80.5
1936										
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										

¹ See Tables 8 and 9 for index numbers for lunch rooms and restaurants not in hotels.

² The survey of dyers and cleaners was first undertaken in May, 1932. In computing the series of index numbers, the level of employment in May, 1932, was assumed to be the same as for laundries. The average shown for 1932 is for the eight months, May to December, inclusive.

Building Statistics. — The collection of records of building permits granted in municipalities in Massachusetts was first undertaken in 1919, and quarterly reports were then received from 36 cities. The number of municipalities reporting has since been increased to 55 (including all of the 39 cities and 16 of the larger towns), and the information has been collected monthly so that data are available, by months, for each of the years 1927 to 1936, inclusive. The reports cover approximately 90 per cent of the building operations in the state, exclusive of state and federal buildings, permits for which are not included in the records of most of the municipalities.

The questionnaire used in collecting this information calls for the number of applications filed for permits to build; the estimated cost of the work, classified by types of structures and intended use; and the number of family accommodations to be provided, classified by classes of residence. Mimeographed summaries of the returns are issued each month immediately following the month to which the statistics relate, giving the respective totals for each of the cities; and an annual summary, similar in form, is also prepared.

In Table 16 data are presented in summary form, showing complete returns for 55 municipalities, combined, for the year 1936, giving the numbers and cost of the different classes of structures. The data for new residential buildings are classified in two major groups, namely, housekeeping dwellings and non-housekeeping dwellings. The housekeeping dwellings are further sub-divided so as to differentiate between one-family, two-family, and multi-family dwellings, and buildings which combine stores and dwellings, and camps. The number of family accommodations provided in each of the four classes of dwellings are also shown. The non-housekeeping dwellings classification includes club and association buildings, hotels, lodging houses, etc., but in 1936 only one structure of this type (a dormitory) was reported.

Table 16. — Summary of Prospective Building in 55 Municipalities in Massachusetts during the Year 1936: By Classes of Structures

1—New Residential Buildings			
CLASSES OF STRUCTURES	Number of Buildings	Estimated Cost	Number of Family Accommodations
Housekeeping dwellings:			
One-family	2,771	\$16,912,997	2,771
Two-family	49	307,200	98
One-family and two-family dwellings with stores or shops therewith	13	57,600	16
Multi-family (three or more families)	14	500,300	179
Camps	87	47,780	—
Non-housekeeping dwellings	1	194,000	—
<i>Totals — New residential buildings</i>	<i>2,935</i>	<i>\$18,019,877</i>	<i>3,064</i>
2—New Non-residential Buildings, and Additions, Alterations, and Repairs			
CLASSES OF STRUCTURES	Number of Buildings	Estimated Cost	Rank on Basis of Cost
Amusement and recreation places (including club buildings without bedrooms)	45	\$574,530	8
Churches, chapels, and parish houses	13	517,550	9
Factories, bakeries, ice-plants, greenhouses, laundries, and other workshops	98	1,338,595	3
Garages, public	39	126,750	14
Garages, private	2,811	1,075,238	5
Gasoline and service stations	170	506,695	10
Institutional buildings	24	2,714,255	2
Office buildings, including banks	40	2,894,675	1
Public buildings, including libraries and museums	13	1,030,313	6
Public works and utilities	18	311,588	12
Schools, grade and high (public and private)	9	710,077	7
Sheds, poultry houses, and other minor outbuildings	832	261,159	13
Storage warehouses, coal pockets, lumber sheds, etc.	118	370,425	11
Stores, restaurants, and other mercantile buildings	197	1,190,974	4
All other non-residential buildings	47	183,846	—
<i>Totals — New non-residential buildings</i>	<i>4,474</i>	<i>\$13,806,670</i>	<i>—</i>
<i>Additions, alterations, and repairs</i>	<i>16,996</i>	<i>\$16,214,293</i>	<i>—</i>

The data for new non-residential buildings are classified so as to show separately the facts for each of 14 important classes of structures. For additions, alterations, and repairs, totals only are presented.

The 2,935 new residential buildings included as the major item 2,771 one-family dwellings to cost \$16,912,997, or 93.8 per cent of the total estimated cost of all new residential buildings planned (\$18,019,877). There was a large increase in the construction of one-family dwellings in 1936 over 1935. In 1935 1,688 new one-family dwellings were planned at an estimated cost of \$10,163,917. The respective gains in 1936 were thus 64.2 per cent in number and 66.4 per cent in value.

The item of next importance from the standpoint of estimated cost was 14 multi-family dwellings to cost \$500,300. Although this item is not large when compared with the amount expended for one-family dwellings it is the largest estimated cost for multi-family dwellings reported in any year since 1931, since which year the number of multi-family dwellings constructed has been almost negligible. The family accommodations planned in the one-family dwellings represented 90.4 per cent of the total family accommodations planned in all types of dwellings, and in the multi-family dwellings it was only 5.9 per cent.

In the 55 municipalities combined the total number of new non-residential buildings planned in 1936 was 4,474, and the value represented by all classes of structures was \$13,806,670. The six outstanding groups were: office buildings, including banks, \$2,894,675; institutional buildings, \$2,714,255; factories, bakeries, ice plants, greenhouses, laundries, and other workshops, \$1,338,595; stores, restaurants, and other mercantile buildings, \$1,190,974; private garages, \$1,075,238; and public buildings, including libraries and museums, \$1,030,313. These six groups together represented \$10,244,050, or 74.2 per cent of the total cost of new non-residential buildings reported in the 55 municipalities.

The total of \$16,214,294, which represented additions, alterations, and repairs to 16,996 structures included a number of large individual projects

Principal data relative to the estimated cost of the work for which permits were granted in the 26 municipalities in Massachusetts in each of which the value of the work planned exceeded \$500,000 in 1936, are presented in Table 17. Boston far out-ranked all of the other municipalities specified in the total estimated cost of all classes of construction for which building permits were granted in 1936. The municipalities in which the amounts exceeded \$1,000,000 were: Boston,

Table 17. — *Estimated Cost of Building Construction in 26 Leading Municipalities in Massachusetts in 1936: By Classes of Work*

MUNICIPALITIES	New Residential Building	New Non-residential Building	Additions, Alterations, and Repairs	Totals — All Classes of Building
Arlington . . .	\$737,400	\$66,180	\$67,821	\$871,401
Belmont . . .	1,374,400	39,815	32,935	1,447,150
Boston . . .	1,271,500	4,658,194	5,880,409	11,810,103
Brookline . . .	1,797,000	360,950	300,910	2,458,860
Cambridge . . .	295,500	554,724	733,511	1,583,735
Holyoke . . .	185,700	272,950	215,785	674,435
Lawrence . . .	79,600	451,710	375,595	906,905
Lowell . . .	55,700	254,375	242,834	552,909
Lynn . . .	87,500	69,457	476,452	633,409
Malden . . .	104,950	467,660	84,821	657,431
Medford . . .	271,500	521,795	74,493	867,788
Melrose . . .	399,500	118,975	66,445	584,920
Milton . . .	813,545	58,075	116,059	987,679
Needham . . .	402,600	67,475	86,765	556,840
Newton . . .	3,521,400	450,179	451,041	4,422,620
Northampton . . .	35,400	22,806	514,260	572,466
Pittsfield . . .	200,850	194,275	286,363	681,488
Quincy . . .	286,200	210,410	439,864	936,474
Salem . . .	102,700	485,875	264,680	853,255
Somerville . . .	49,000	67,590	421,420	538,010
Springfield . . .	374,375	225,463	673,952	1,273,790
Waltham . . .	243,900	503,045	206,892	953,837
Wellesley . . .	1,774,950	207,380	96,790	2,079,120
Westfield . . .	25,800	939,475	45,985	1,011,260
Winchester . . .	636,190	128,630	60,326	825,146
Worcester . . .	853,775	271,202	830,093	1,955,070

\$11,810,103; Newton, \$4,422,620; Brookline, \$2,458,860; Wellesley, \$2,079,120; Worcester, \$1,955,070; Cambridge, \$1,583,735; Belmont, \$1,447,150; Springfield, \$1,273,790; and Westfield, \$1,011,260.

On the basis of estimated cost of *new residential* building in 1936, Newton led all other municipalities. The municipalities in which the estimated cost of new residential building exceeded \$500,000 were: Newton, \$3,521,400; Brookline, \$1,797,000; Wellesley, \$1,774,950; Belmont, \$1,374,400; Boston, \$1,271,500; Worcester, \$853,775; Milton, \$813,545; Arlington, \$737,400, and Winchester, \$636,190. In each of these municipalities, except Boston and Worcester, residential building constituted over 70.0 per cent of the total building in the municipality.

Boston led all other municipalities with respect to the estimated value of *new non-residential* building in 1936. In each of the following municipalities the estimated value exceeded \$500,000: Boston, \$4,658,194; Westfield, \$939,475 (which amount included a State Sanatorium to cost \$900,000); Cambridge, \$554,724; Medford, \$521,795; and Waltham, \$503,045. Boston also led all other municipalities with respect to the estimated value of *additions, alterations, and repairs*. In each of the following municipalities the estimated value exceeded \$500,000: Boston, \$5,880,409; Worcester, \$830,093; Cambridge, \$733,511; Springfield, \$673,952; and Northampton, \$514,260.

In Table 18 summary data are presented, showing, by classes of projects, the number and estimated cost of new residential buildings, new non-residential buildings, and additions, alterations, and repairs, for which permits were granted, during each of the years 1927 to 1936, inclusive, and by months in 1936.

The total number of buildings for all classes of projects was greater by 10.2 per cent than in 1935, and the estimated cost was greater by 30.6 per cent. For each of the three classes of work the respective increases in number and value were: new residential building, number, 63.1 per cent, and cost 65.4 per cent; new non-residential building 12.5 per cent, and 7.4 per cent; and additions, alterations, and repairs 3.9 per cent, and 24.4 per cent. The increase of over eleven million dollars in the total value for all classes of work during the year 1936 over the corresponding amount during the year 1935 was due to a gain of over seven million in the estimated cost of new residential construction and over three million in estimated cost of additions, alterations, and repairs. The totals for 1936 in new residential and new non-residential construction exceeded those for any year since 1931, and the totals for additions, alterations, and repairs were greater than in any year since 1930.

Table 18. — *Number and Estimated Cost of Building in 55 Municipalities in Massachusetts: By Years, 1927–1936, inclusive, and by Months in 1936: By Classes of Projects*

YEARS AND MONTHS	New Residential Building	New Non- Residential Building	Additions, Alterations and Repairs	Totals — All Classes of Projects
Number of Buildings				
1927	11,418	14,231	18,666	44,315
1928	10,580	12,967	17,184	40,731
1929	6,759	12,039	17,607	36,405
1930	4,931	9,615	16,417	30,963
1931	4,587	8,392	16,210	29,189
1932	1,806	5,134	14,115	21,055
1933	1,786	4,188	13,495	19,469
1934	1,314	3,800	14,254	19,368
1935	1,800	3,978	16,362	22,140
1936	2,935	4,474	16,996	24,405
Number of Buildings in 1936: By Months				
1936				
January	101	159	718	978
February	48	70	604	722
March	203	226	1,196	1,625
April	273	447	1,738	2,458
May	285	473	1,836	2,594
June	304	484	1,685	2,473
July	301	432	1,821	2,554
August	278	396	1,647	2,321
September	292	506	1,715	2,513
October	304	529	1,733	2,566
November	252	433	1,221	1,906
December	294	319	1,082	1,695
Totals, 1936	2,935	4,474	16,996	24,405

Table 18. — *Number and Estimated Cost of Building in 55 Municipalities in Massachusetts: By Years, 1927–1936, inclusive, and by Months in 1936: By Classes of Projects — Concluded*

YEARS AND MONTHS	New Residential Building	New Non- Residential Building	Additions, Alterations and Repairs	Totals — All Classes of Projects
Estimated Cost				
1927 . . .	\$101,959,226	\$51,765,595	\$27,574,615	\$181,299,436
1928 . . .	96,878,609	52,047,563	22,122,372	171,048,544
1929 . . .	69,936,017	53,945,280	29,774,203	153,655,500
1930 . . .	40,146,313	45,173,157	22,033,838	107,353,308
1931 . . .	32,956,935	38,495,601	14,240,473	85,693,009
1932 . . .	9,797,266	11,800,136	10,771,930	32,369,332
1933 . . .	9,513,475	5,646,159	9,859,614	25,019,248
1934 . . .	7,399,030	10,367,863	11,937,370	29,704,263
1935 . . .	10,893,651	12,854,240	13,036,665	36,784,556
1936 . . .	18,019,877	13,806,670	16,214,293	48,040,840
Estimated Cost in 1936: By Months				
January . . .	\$667,150	\$1,621,537	\$1,168,462	\$3,457,149
February . . .	323,000	513,260	1,129,489	1,965,749
March . . .	1,302,210	1,573,405	1,449,252	4,324,867
April . . .	1,884,575	1,041,479	1,458,549	4,384,903
May . . .	1,613,190	1,605,178	1,221,406	4,439,774
June . . .	1,702,115	673,809	1,475,093	3,851,017
July . . .	1,755,844	1,273,529	1,835,857	4,865,230
August . . .	1,700,625	645,531	1,317,842	3,663,998
September . . .	1,551,740	793,136	1,151,067	3,495,943
October . . .	1,927,270	440,191	1,293,260	3,660,721
November . . .	1,651,608	1,474,698	1,552,709	4,679,015
December . . .	1,940,550	2,150,917	1,161,007	5,252,474
<i>Totals, 1936 .</i>	<i>\$18,019,877</i>	<i>\$13,806,670</i>	<i>\$16,214,293</i>	<i>\$48,040,840</i>

Index numbers representing estimated cost of construction for which permits were granted during the years 1927–1936, inclusive, and during each of the months in 1936, by classes of projects, are presented in Table 19. These index numbers were computed using respective estimated costs in 1927 as the base so that the trends of building construction might be related to the trends of employment and wages paid to building tradesmen actually employed on construction work during the corresponding years. The similarity in trends is very evident upon referring to the charts appearing on page 93.

Table 19. — *Index Numbers of Value Represented by Permits to Build in 55 Municipalities in Massachusetts: By Years, 1927–1936, inclusive, and by Months in 1936: By Classes of Projects*

YEARS AND MONTHS	INDEX NUMBERS (Base, 100 = Estimated Value in 1927)			
	New Residential Building	New Non- residential Building	Additions, Alterations, and Repairs	Totals — All Classes of Projects
1927 (Base) . . .	100.0	100.0	100.0	100.0
1928 . . .	95.0	100.5	80.2	94.3
1929 . . .	68.6	104.2	108.0	84.8
1930 . . .	39.4	87.3	79.9	59.2
1931 . . .	32.3	74.4	51.6	47.3
1932 . . .	9.6	22.8	39.1	17.9
1933 . . .	9.3	10.9	35.8	13.8
1934 . . .	7.3	20.0	43.3	16.4
1935 . . .	10.7	24.8	47.3	20.3
1936 . . .	23.2	29.8	65.0	32.3
<i>1936</i>				
January . . .	7.8	37.6	50.8	22.9
February . . .	3.8	11.9	49.1	13.0
March . . .	15.3	36.5	63.1	28.6
April . . .	22.2	24.1	63.5	29.0
May . . .	19.0	37.2	53.1	29.4
June . . .	20.0	15.6	64.2	25.5
July . . .	20.7	29.5	79.9	32.2
August . . .	20.0	15.0	57.4	24.3
September . . .	18.3	18.4	50.1	23.1
October . . .	22.7	10.2	56.3	24.2
November . . .	19.4	34.2	67.6	31.0
December . . .	22.8	49.9	50.5	34.8

SPECIAL INVESTIGATIONS

Investigation Relative to Discrimination Against Older Wage-Earners. — Chapter 33 of the Resolves of 1935 provided for "further investigation by the Department of Labor and Industries relative to the matter of preventing discrimination against certain persons in employment on account of their age."¹ This investigation was assigned to the Division of Statistics, because the subject was primarily one requiring statistical research.

Fourteen public hearings and two conferences were held. Stenographic notes of the testimony at the hearings and conferences were taken and transcribed and abstracts were made for use in the preparation of the report. The evidence thus secured was found to be not sufficiently specific to justify definite conclusions as to the extent and nature of the discrimination, which, it was claimed, was being practiced by employers. Accordingly, the scope of the investigation was extended to include the securing of evidence by questionnaires which were sent to officials of the principal labor organizations in Massachusetts, and to employers in this state who were known to employ ten or more wage-earners. Statistical investigators were also assigned to the work of securing evidence throughout the Commonwealth.

A preliminary report and a proposed bill were prepared and submitted to the legislature on April 21, 1936, for publication as a House Bill, but after consideration by the Speaker of the House and the House and Senate Chairmen of the Legislative Committee on Labor and Industries and others interested in the subject matter of the report, it was not deemed advisable to print the preliminary report or to introduce the proposed bill so late in the session.

The final report of the investigation was completed, and extracts from the report, with an accompanying bill to carry out the recommendations of the department with reference to this subject, were submitted to the legislature on December 2, 1936.² The full report will be published as a part of the annual report of the department.

Compilation of the Statistics of Manufactures, 1920-1935. — This special work, which was begun in January, 1936, consists of the compilation, for publication in a single volume, of much valuable statistical material, covering the period 1920-1935, obtained in connection with the Census of Manufactures in Massachusetts taken annually by the Division of Statistics. All of the census records have been preserved in manuscript. Although much of the material has been made public in the form of mimeographed press announcements, abstracts only have been published in the printed reports of the department. It has seemed highly desirable, therefore, that this census material be compiled and printed in an official report for purposes of permanent record.

This work was undertaken as a W.P.A. project, and the funds required for the payment of the salaries of those employed were provided by the federal government. Office space for the use of the staff was rented at 209 Washington Street, Boston, for a period of six months and later the use of a large hearing room at the state house was secured for this purpose. The rental charges were paid from the appropriation for the Division of Statistics. The division also furnished some supervisory and clerical assistance and all necessary equipment, materials and supplies. Sixteen persons were assigned to this work by the W.P.A. Administration for a period of about ten months.

The compilation of the records for the years 1920 to 1934 has been completed (subject to verification). The records for the year, 1935, will be added and the report should be ready for publication early in 1938. The cost of the publication of the report will be paid from the appropriation for the statistical work of the division.

DEPARTMENTAL STATISTICAL PROJECT — NATIONAL YOUTH ADMINISTRATION

A National Youth Administration Project providing for the employment of young persons, 18 to 25 years of age, on statistical and clerical work in the department, was started in April, 1936, and was continued throughout the remainder of

¹ This resolve provided that the Department of Labor and Industries should *continue* the investigation conducted by a special commission which had been established under the provisions of chapter 39 of the Resolves of 1934.

² Printed as House Bill No. 33, session of 1937.

the year. This project was set up as a general departmental project, because none of the divisions of the department could furnish employment for a sufficiently large number of young persons to justify setting up a separate project in each division. Arrangements were made for the transfer of these young persons from one division to another as occasion might require. The general supervision of the project was assigned to the Director of Statistics.

The N.Y.A. regulations provide for the employment of the clerks for not exceeding 44 hours each per month, and for the employment of the supervisor and the time keeper for not exceeding 132 hours each month. The work performed by the group of 20 young persons employed in April proved so satisfactory that application was made for the assignment of two groups instead of one group each month. This application was approved and beginning with the first period (half-month) in May, two alternating groups (one for the first period and the other for the second period each month) have been employed, making a total of forty young persons employed on this work since April. Some changes in the personnel have occurred. Sixteen of those originally assigned have secured positions in private employment, two were transferred to other projects, and one became ineligible, having reached the age of 25 years.

Those employed have been engaged, for the most part, on the following classes of work: transcribing statistical and other records for a series of years in the Division of Statistics, Division of Industrial Safety and the Minimum Wage Commission; installation of a new library system and compilation of an index card file of "Abstracts from the Journal of Industrial Hygiene," having reference to industrial diseases, in the Division of Industrial Hygiene; and the calibration of standard weights and the compilation of records in the Division of Standards.

Without the assistance of these young persons these several classes of work could not have been undertaken. Their employment has not resulted in the displacement of any of the regular employees in the department. In addition to the valuable work accomplished, the training and experience which these young persons have received has amply justified the expenditure of the funds made available by the National Youth Administration. The fact that such a large number of those assigned to the work have secured employment elsewhere is evidence of the value of the practical training which they received while employed in this department.

INFORMATION SERVICE

Special Inquiries. — The answering of requests for information relative to the industries of the commonwealth, rates of wages, hours of labor, and conditions of employment is an important part of the work of the division. A record of such inquiries has been kept during the past year, and the number which required special attention, other than merely the sending of a marked copy of a printed or mimeographed report, was 892, of which number 241 were of such a nature as to require the making of special tabulations of information on file in the division, and 651 of which were answered directly from the research library. That there has been a continued increase in the demand for information is indicated by the fact that the number of special inquiries increased from 482 in 1934, to 749 in 1935, and to 892 in 1936.

In addition to its regular work during the year, the division was called upon to answer a large number of inquiries involving the special tabulation of information, and the preparation of lists of establishments which were not published in its reports. Of these the following were the most important:

Number of persons and amount of pay rolls covered by the Unemployment Compensation Act in Massachusetts.

Employment and unemployment census data, 1930-1936.

Night operation of textile mills in Massachusetts.

Third shift operation of rayon manufacturing establishments in 1936.

Comparison of strikes in Massachusetts and other states in 1935.

Classification of manufacturing establishments in Massachusetts, based on number of wage-earners employed.

Boot and shoe production in Massachusetts, 1935 and 1936.

Boot and shoe manufacturing in Brockton, Lynn and Haverhill in recent years.

Migration of shoe manufacturing establishments in the city of Haverhill.

Customary store hours in the principal municipalities in Massachusetts.
Operations of establishments manufacturing boot and shoe cut stock and findings, 1923-1935.

Capital invested in the manufacture of women's clothing.

Value of real estate and machinery used in manufacture in selected establishments in Massachusetts.

The Reference Library. — The department maintains a reference library which was organized when the Bureau of Statistics of Labor was created in 1869, and which has steadily increased its collection since that time. Through the exchange of publications with federal bureaus, with departments of other state governments carrying on work along similar lines, with trade unions, and with industrial organizations, the members of the department are kept in touch with matters on industry and labor. A file of the publications of the International Labour Office is also kept. When the General Court is in session a complete file of legislative material is maintained and the bills of interest to the department are indexed and referred to the various officials. The primary purpose of the library is to serve as an information center for the department, but it is used extensively by the general public, including many students from the local colleges.

The library now includes more than 4,000 bound volumes, numerous pamphlets and current mimeographed material. There are received currently 23 quarterlies, 185 monthlies, 27 weeklies, and 13 daily newspapers. Clippings from the newspapers and some periodicals are referred to the officials of the department and others are kept for current reference.

The department is represented by its Librarian in the Boston Chapter of the Special Libraries Association, and participates in the reference and exchange service with the Boston Public Library, the State Library, the Widener Library at Harvard University, and with Special Libraries in Boston and vicinity. The librarian and one assistant devote full time to this work, and during 1936 they have had the part-time assistance of two clerks who were assigned to work in the department by the National Youth Administration.

Subjects of inquiry which were of special interest during the year were: unemployment; social security laws and administration; labor injunctions; federal and other state labor legislation; health and safety regulations in industry; minimum wages; industrial relations programs; building operations; statistics from the federal censuses; discrimination in employment on account of age; child labor amendment; employment of women and minors in industry; prevailing rates of wages on public works; National Labor Relations Board; Walsh-Healy Act; workmen's compensation; industrial accidents; labor disputes; National Industrial Recovery; changes in the cost of living; and the resources of the state. The library is, in fact, a clearing house of information for all the people, legislators, officials, students of labor conditions, and others who want to know what has been done and is being done in the matter of labor problems and relations.

CENSUS OF MANUFACTURES, 1935

INTRODUCTORY

The census of manufactures in Massachusetts for the year, 1935, was taken in 1936 by the Division of Statistics in co-operation with the United States Bureau of the Census. The law providing for the taking of the "Annual Census of Manufactures in Massachusetts" (General Laws, chapter 149, sections 169-173) provides, in Section 171, that

The commissioner [of the Department of Labor and Industries] may suspend the operation of this section, in years when the United States takes a census of manufactures in Massachusetts, to such degree as may be necessary in order to facilitate co-operation between said department and the federal census authorities in the collection and compilation of the statistics of Massachusetts manufactures in such census years and the avoidance of needless duplication of labor and expense.

In 1933 and in former years when a federal census was taken, the co-operative agreement between the Federal Bureau of the Census and the Massachusetts Department of Labor and Industries provided that all of the annual reports from manufacturers in Massachusetts should be collected by the Division of Statistics

under the supervision of the Director of Statistics, and that the original reports should be forwarded to the Federal Bureau of the Census after copies had been made for the use of the division. In 1936 the Federal Census of Manufactures for 1935 was taken in connection with a Census of American Business, the funds for taking of which census were provided by the Public Works Administration. In order to avoid a "needless duplication of labor and expense," the usual form of the co-operative agreement between the federal and state offices was modified so as to provide that the reports from manufacturers in Massachusetts should be collected by the Federal Bureau of the Census, and that copies of the original reports should be forwarded to the state office for its use in the compilation of the report for Massachusetts. This plan of co-operation resulted in a considerable saving to the Division of Statistics because nearly all of the expense of collection of the original reports from manufacturers in Massachusetts was borne by the federal government, but, on the other hand, it resulted in some unavoidable delay in the announcement by the Division of Statistics of the census returns for Massachusetts in the full detail in which they have been presented in former years. In October, 1936, the Federal Bureau of the Census issued, in the form of a preliminary release to the press, a "Summary for Massachusetts." The principal data are presented in the following section of this report. The *final* returns for the year, 1935, are being tabulated by the Division of Statistics, and the tabulations, in detail, by industries and municipalities will be made public immediately on completion of the tabulations.

SUMMARY OF PRINCIPAL DATA, 1913-1935

According to the preliminary announcement by the Federal Bureau of the Census, the total number of manufacturing establishments in operation in Massachusetts in 1935 was 8,284, the average number of wage-earners employed in these establishments was 438,830, the total amount paid in wages during the year was \$441,152,000, and the total value of the products manufactured was \$2,065,491,000. These figures for 1935 are "preliminary and subject to revision."

Table 20. — Principal Data Relative to Manufactures in Massachusetts, All Industries Combined, 1913-1935, inclusive

YEARS	Number of Establishments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products	Value Added by Manufacture
1913	8,405	\$1,345,461,875	\$961,778,476	\$351,299,706	616,927	\$1,658,728,363	\$696,949,887
1914	12,013 ¹	1,548,960,733	931,383,793	341,309,517	606,698	1,641,375,047	709,989,254
1915	9,707	1,550,080,995	959,662,457	346,243,472	596,348	1,692,445,366	732,782,909
1916	9,829	1,791,050,092	1,354,433,202	447,957,731	682,621	2,349,933,003	995,499,801
1917	9,865	2,239,848,630	1,782,440,354	537,144,629	708,421	3,020,557,545	1,238,117,191
1918	9,695	2,510,730,295	2,249,822,722	679,401,273	719,210	3,851,346,215	1,601,523,493
1919	11,906 ¹	2,962,108,527	2,260,713,036	766,623,337	713,836	4,011,181,532	1,750,468,496
1920	10,262	2,987,620,867	2,489,237,446	891,176,822	695,832	4,370,276,822	1,881,039,376
1921	9,994 ¹	²	1,441,035,230	641,360,936	579,071	2,849,413,516	1,408,378,286
1922	10,056	2,822,014,756	1,512,510,105	678,073,968	612,682	3,002,625,958	1,490,115,853
1923	10,519 ¹	²	1,835,218,349	799,363,111	687,443	3,570,543,265	1,735,324,916
1924	10,174	2,853,590,206	1,629,342,134	711,812,104	589,364	3,126,137,145	1,496,795,011
1925	10,027 ¹	²	1,794,643,051	716,155,593	591,438	3,426,617,326	1,631,974,275
1926	9,903	2,819,189,700	1,790,611,294	738,208,510	602,343	3,419,814,877	1,629,203,583
1927	10,037 ¹	²	1,678,812,411	705,929,549	578,068	3,317,851,888	1,639,039,477
1928	9,971	2,735,070,138	1,663,155,564	670,063,291	540,927	3,224,227,651	1,561,072,087
1929	9,872 ¹	²	1,681,432,788	694,805,312	557,494	3,392,162,237	1,710,729,449
1930	9,586	2,483,589,920	1,323,317,227	573,838,044	481,449	2,676,387,256	1,343,070,029
1931	9,305 ¹	²	1,015,093,739	474,189,202	434,441	2,157,450,449	1,142,356,710
1932	8,778	1,888,244,721	718,347,675	334,358,550	350,521	1,521,752,939	803,405,264
1933	8,145 ¹	²	800,611,332	354,523,624	398,592	1,668,733,387	868,122,055
1934	8,336	1,825,540,470	924,075,172	408,617,489	423,933	1,855,598,291	931,523,119
1935 ³	8,284 ¹	²	⁴	441,152,000	438,830	2,065,491,000	⁴

¹ The Census of Manufactures for the years 1914, 1919, 1921, 1923, 1925, 1927, 1929, 1931, 1933, and 1935 included certain publishing establishments not canvassed in the other years specified, and data for these years, therefore, are not strictly comparable with corresponding data for the other years specified.

² Not called for on the questionnaire.

³ Preliminary tabulation subject to corrections.

⁴ Not yet available.

A comparison of these *preliminary* returns for 1935, with the *final* returns for 1934 shows that although there was a decrease of 52, or 0.6 per cent, in the number of establishments reported as in operation, there were increases in 1935 over 1934 in the following principal items: average number of wage-earners employed, 14,897, or 3.5 per cent; amount paid in wages during the year, \$32,534,511, or 8.0 per cent; value of products manufactured, \$209,892,709, or 11.3 per cent.

In order to show the general industrial trends in Massachusetts during a series of years, prior to and including the period of depression, the principal data for the years, 1913 to 1935, inclusive, are presented in Table 20. A comparison of these returns shows that there was a continuous decrease in industrial activity in Massachusetts beginning in 1930 and reaching the lowest point in 1932, and that thereafter there was an increase from year to year in each of the principal items, except that the number of establishments reported as in operation in 1933 was less than in 1932, and the number in 1935 was less than in 1934.

CHARTS

Plate 1

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID, IN
MANUFACTURING IN MASSACHUSETTS, 1926-1936

Base: Average for Three Years 1925, 1926, 1927 = 100

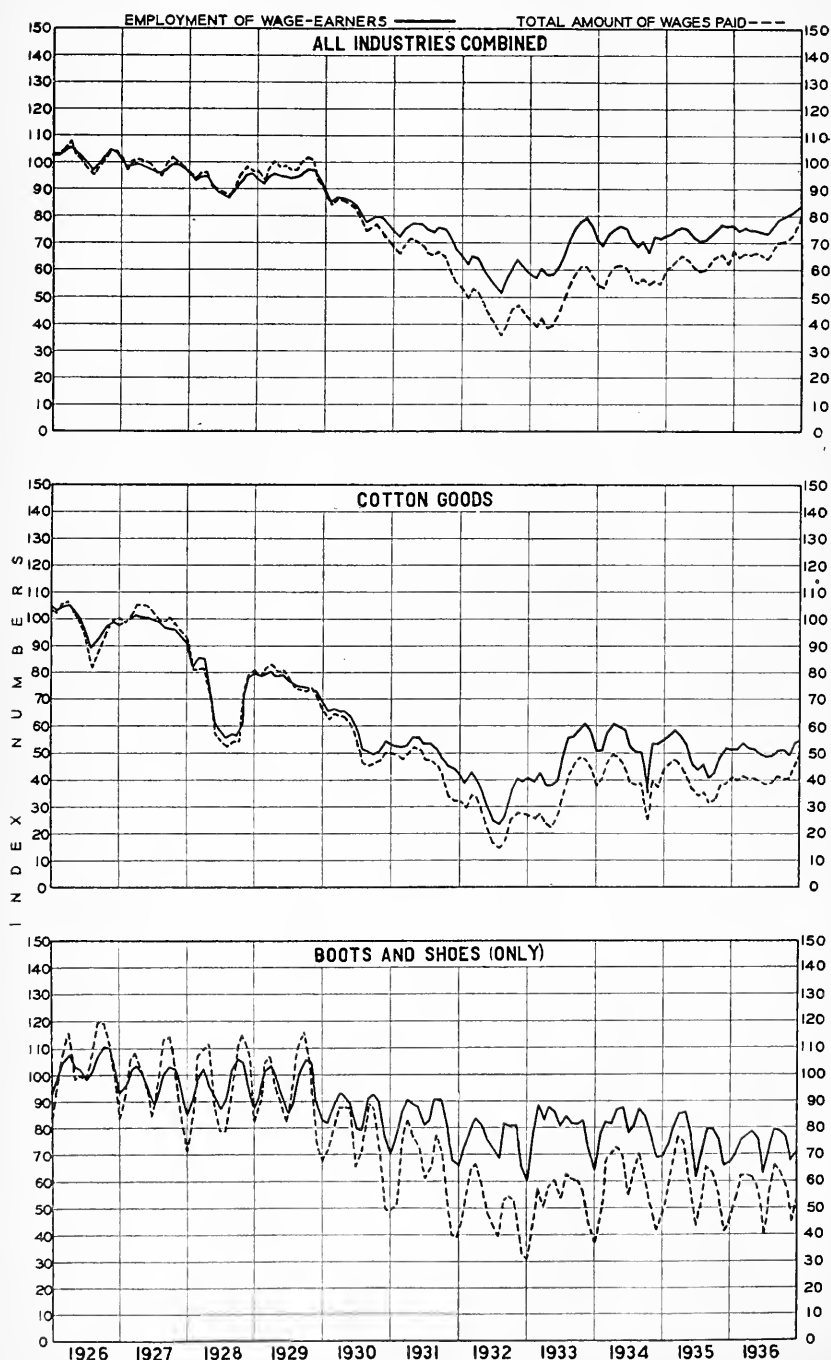


Plate 2

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1936 (Continued)

Base: Average for Three Years 1925, 1926, 1927 = 100

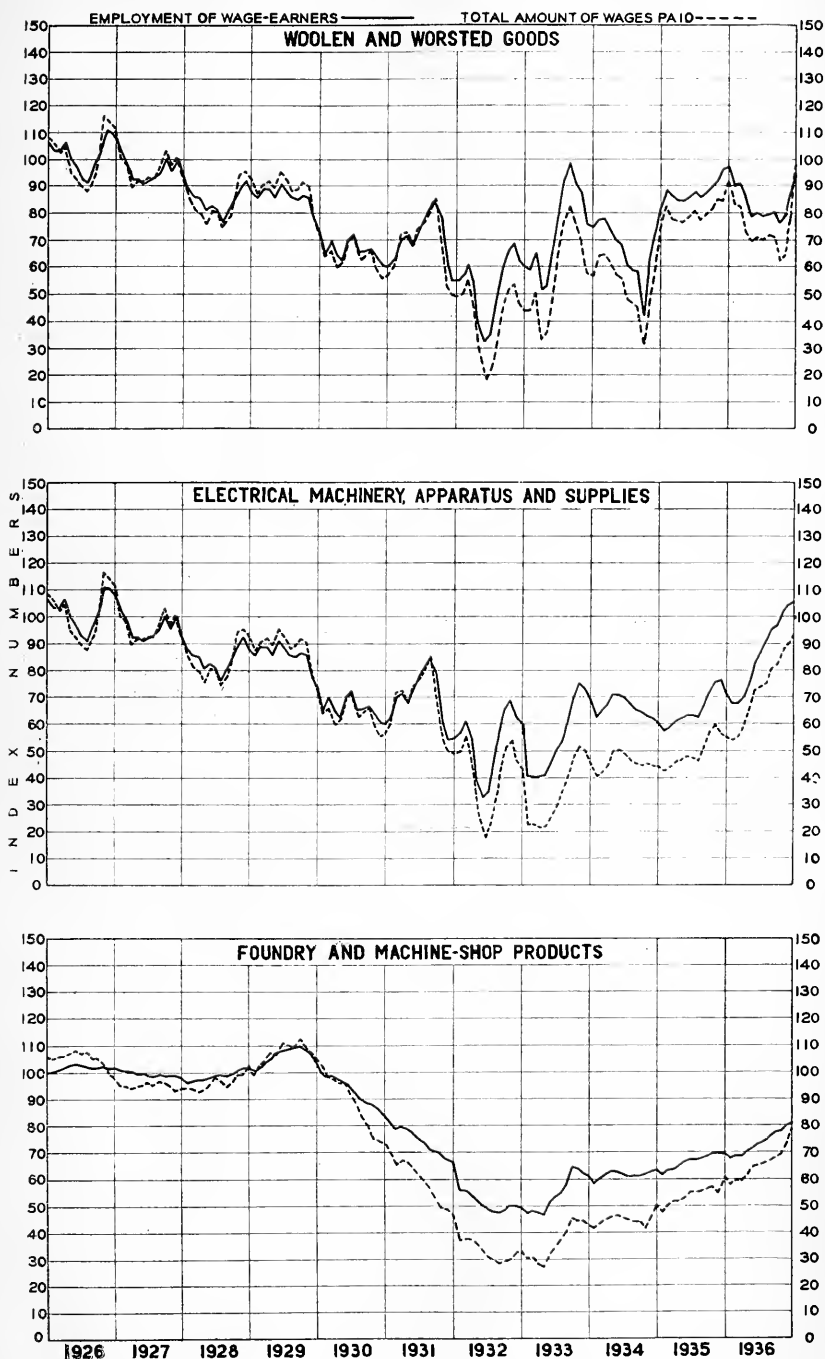


Plate 3

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1936 (Continued)

Base: Average for Three Years 1925, 1926, 1927=100

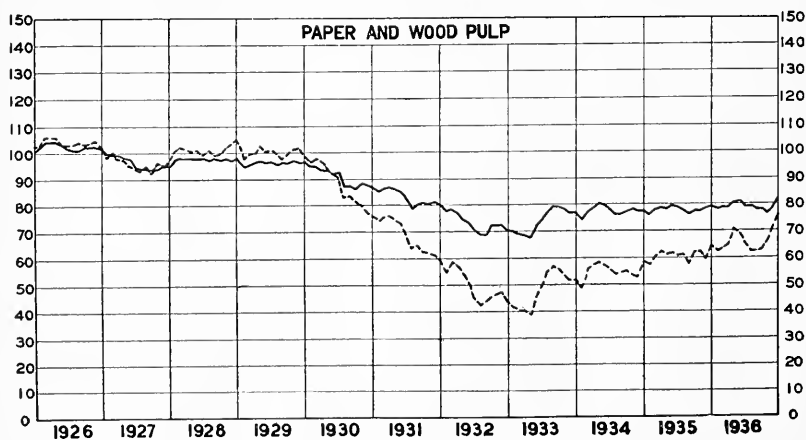
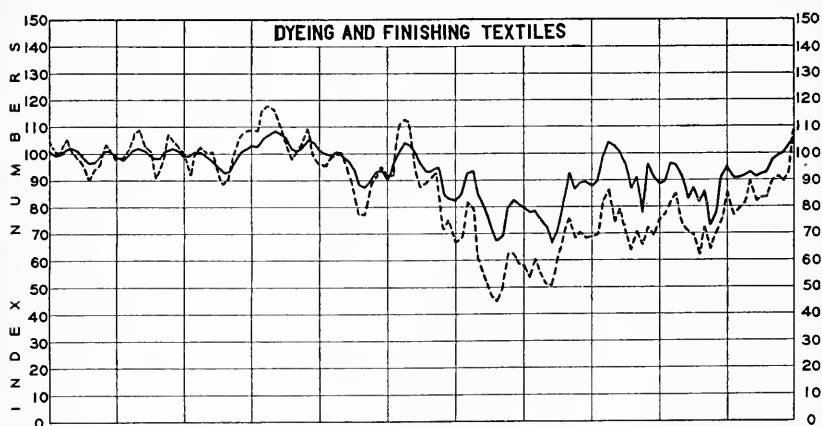
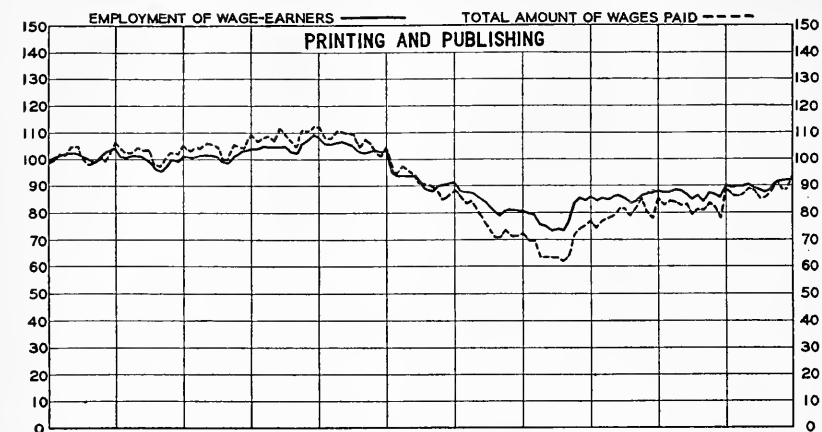


Plate 4

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1936 (Continued)

Base: Average for Three Years 1925, 1926, 1927 = 100

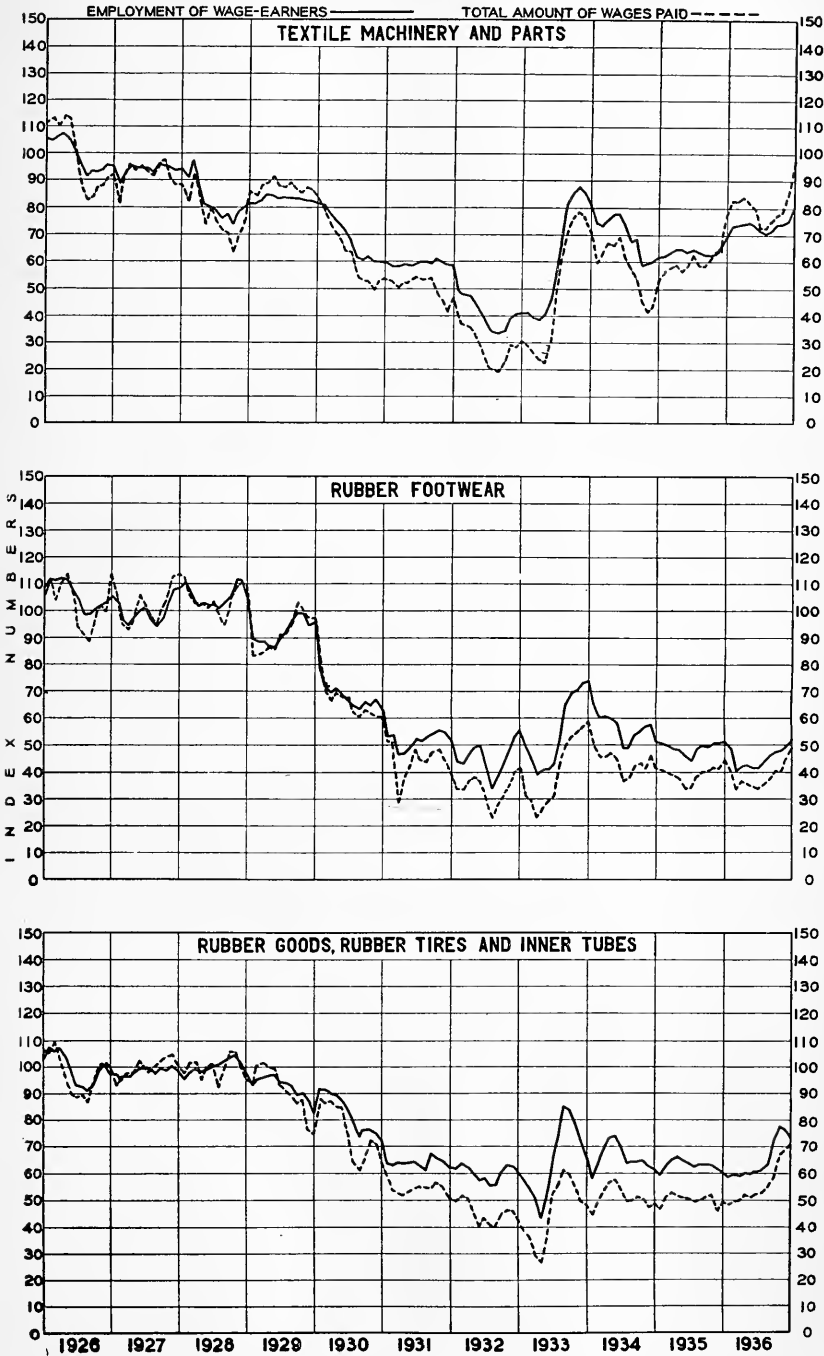


Plate 5

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1936 (Continued)

Base: Average for Three Years 1925, 1926, 1927 = 100

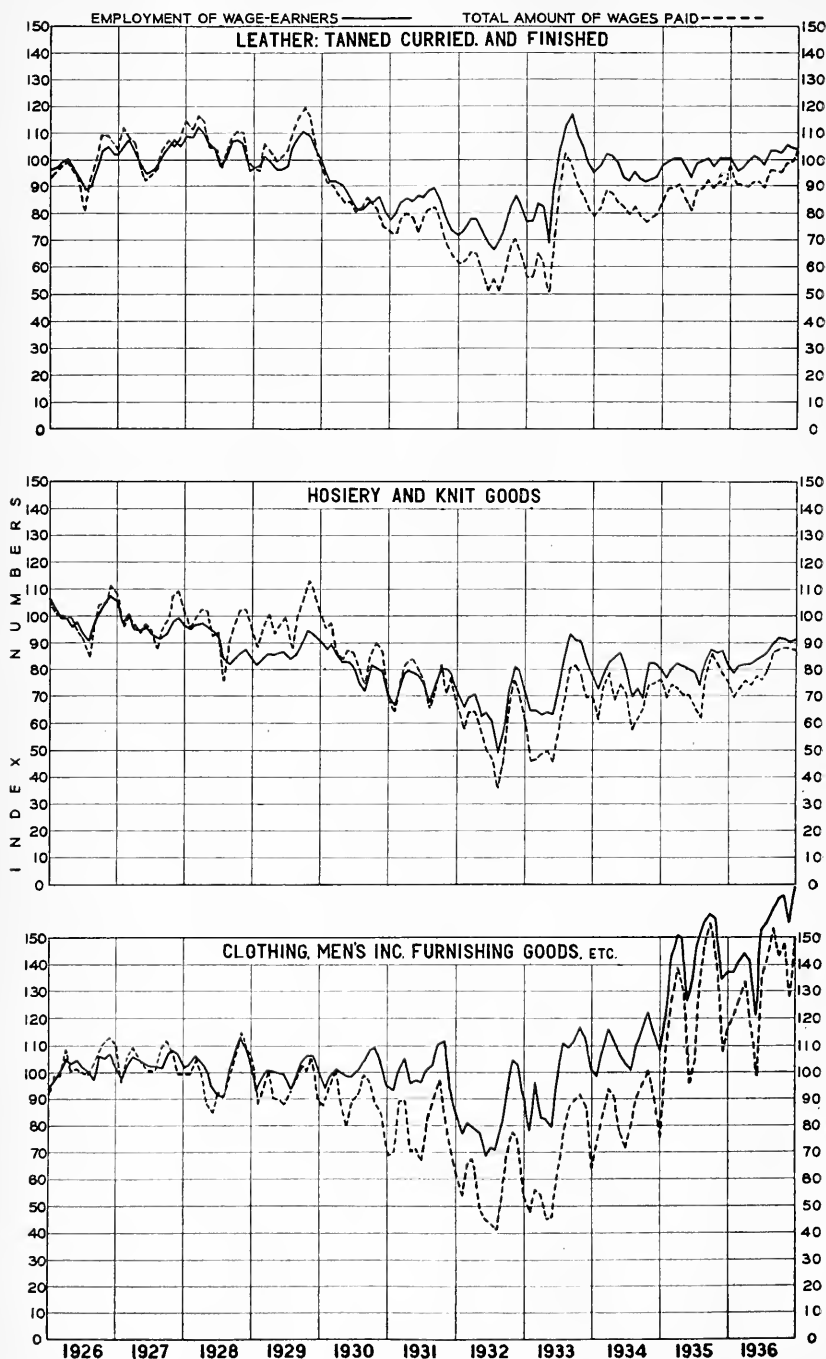


Plate 6

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1936 (Continued)

Base: Average for Three Years 1925, 1926, 1927 = 100

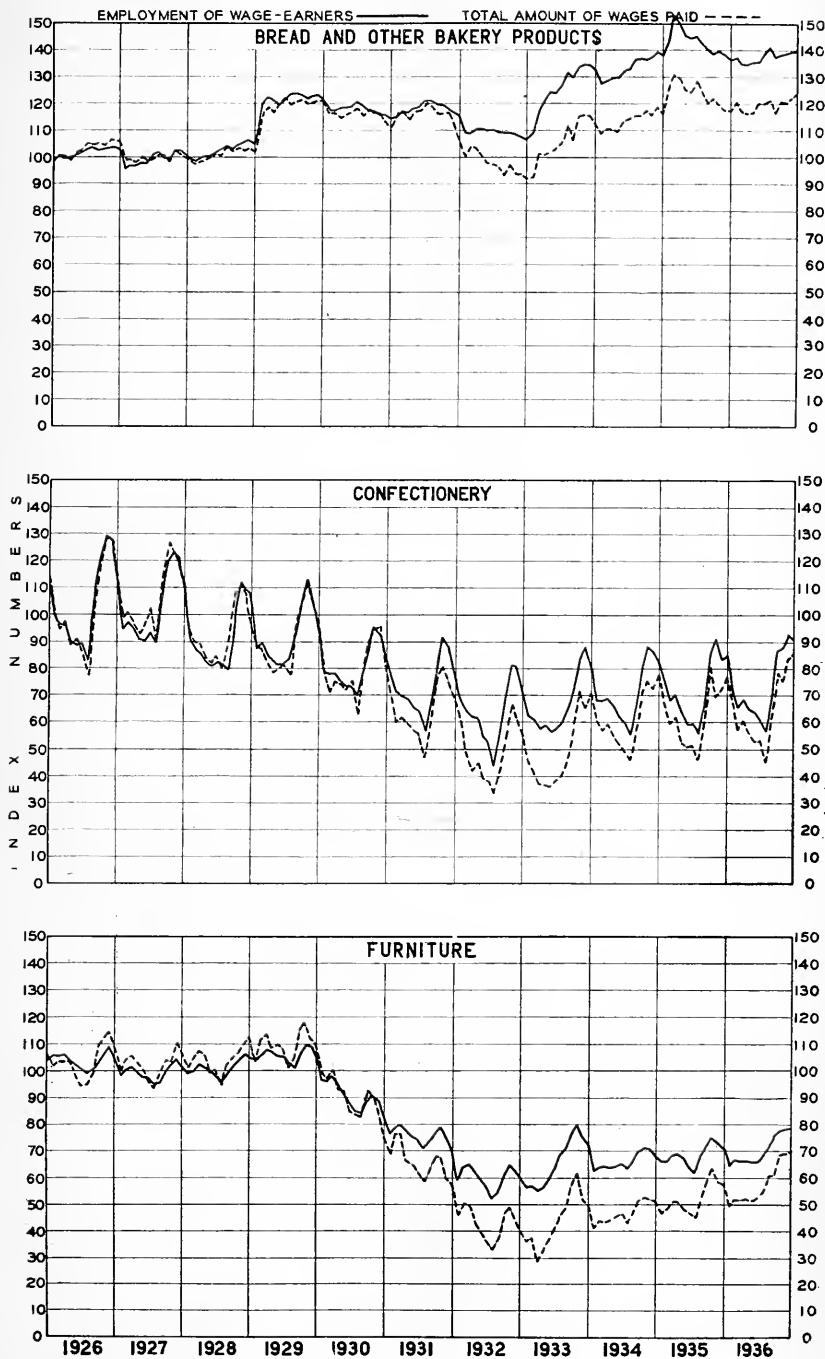


Plate 7

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1936 (Concluded)

Base: Average for Three Years 1925, 1926, 1927 = 100

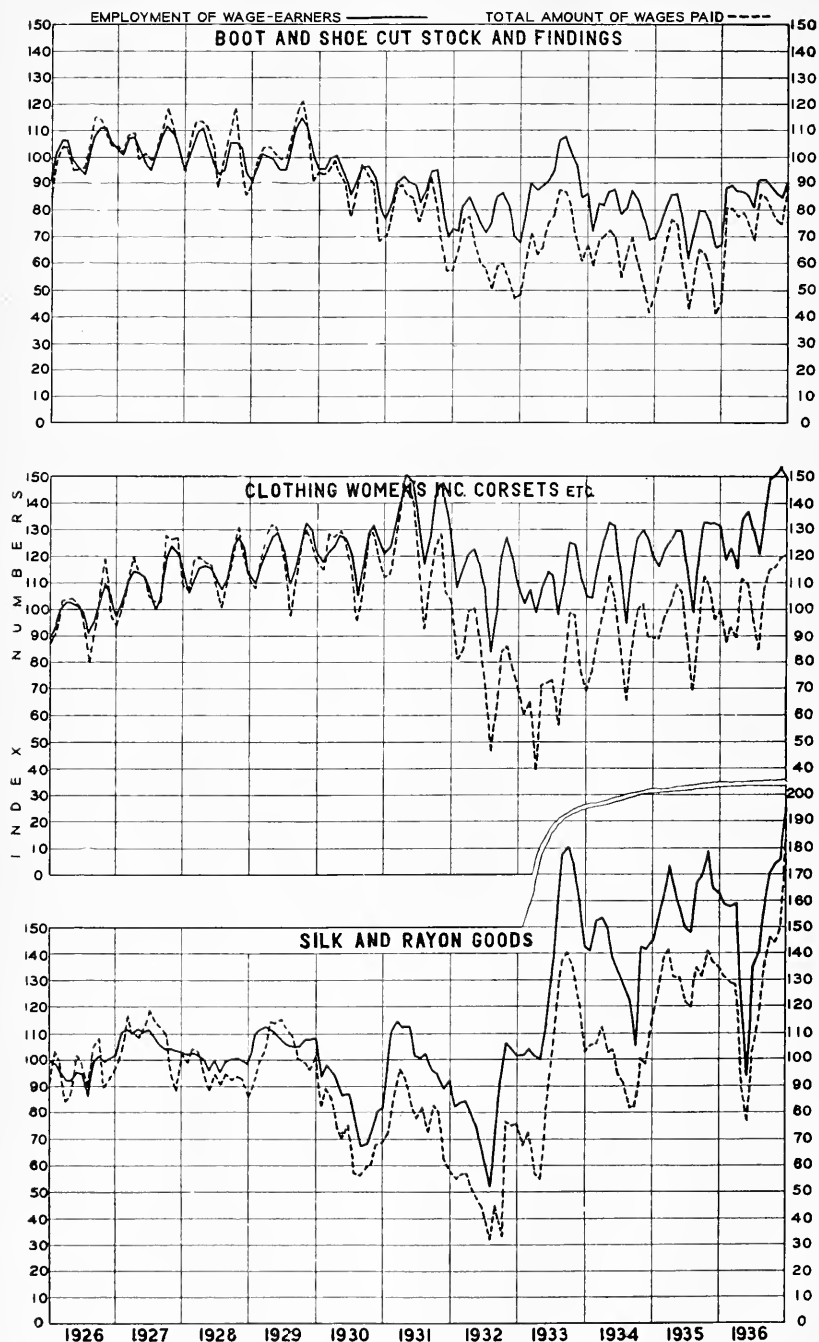


Plate 8

**TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN
MANUFACTURING IN 15 LEADING INDUSTRIAL CITIES IN
MASSACHUSETTS: 1934-1936**

Base: Average for Three Years 1925, 1926, 1927=100

EMPLOYMENT——— AMOUNT PAID IN WAGES-----

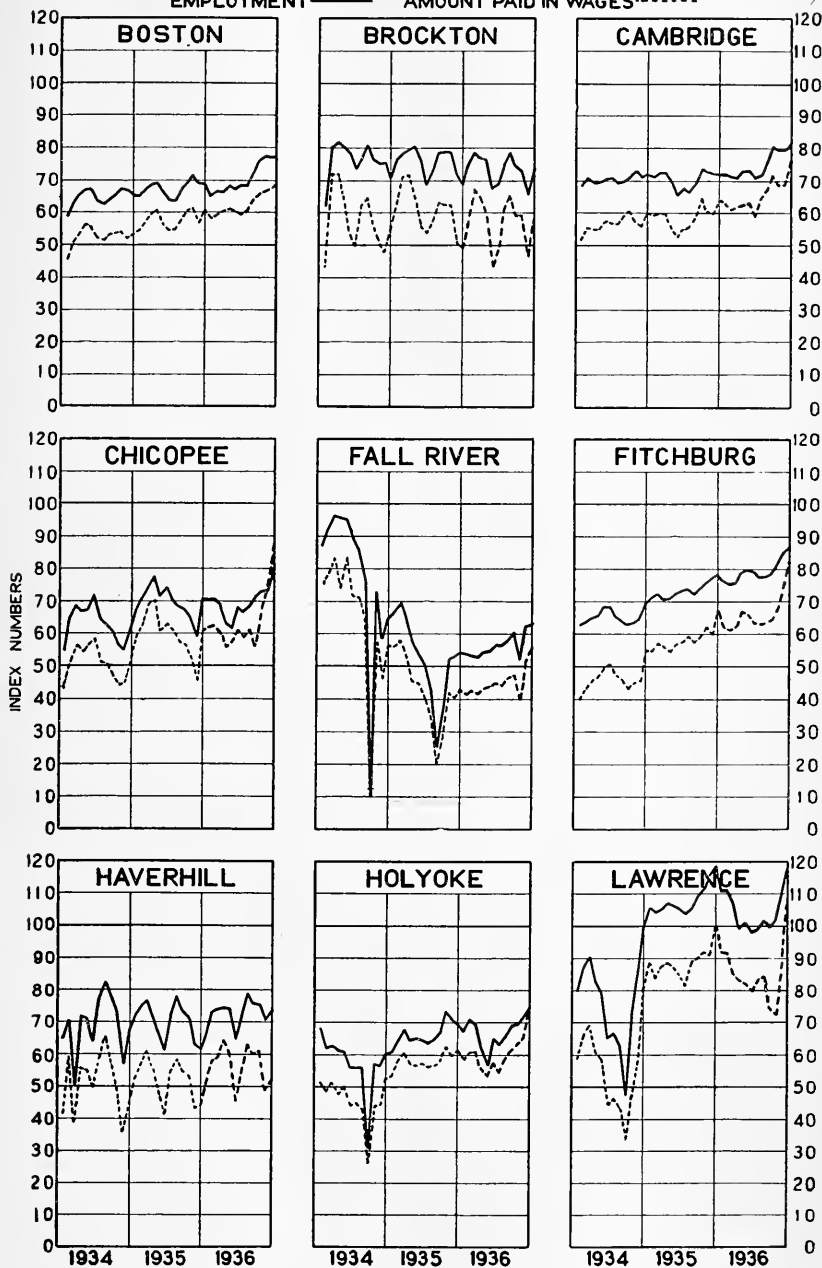
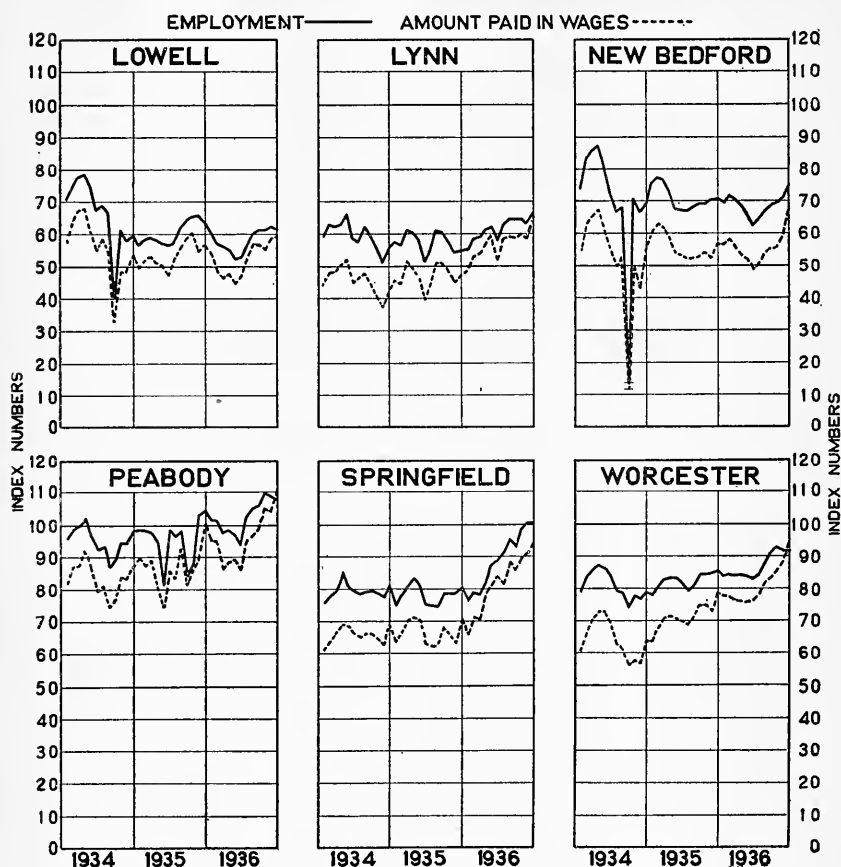


Plate 9

**TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN
MANUFACTURING IN 15 LEADING INDUSTRIAL CITIES IN
MASSACHUSETTS: 1934-1936 (Concluded)**

Base: Average for Three Years 1925, 1926, 1927=100



TRENDS OF EMPLOYMENT IN WHOLESALE AND RETAIL TRADE
IN MASSACHUSETTS: 1932-1936

Base: September, 1931 = 100

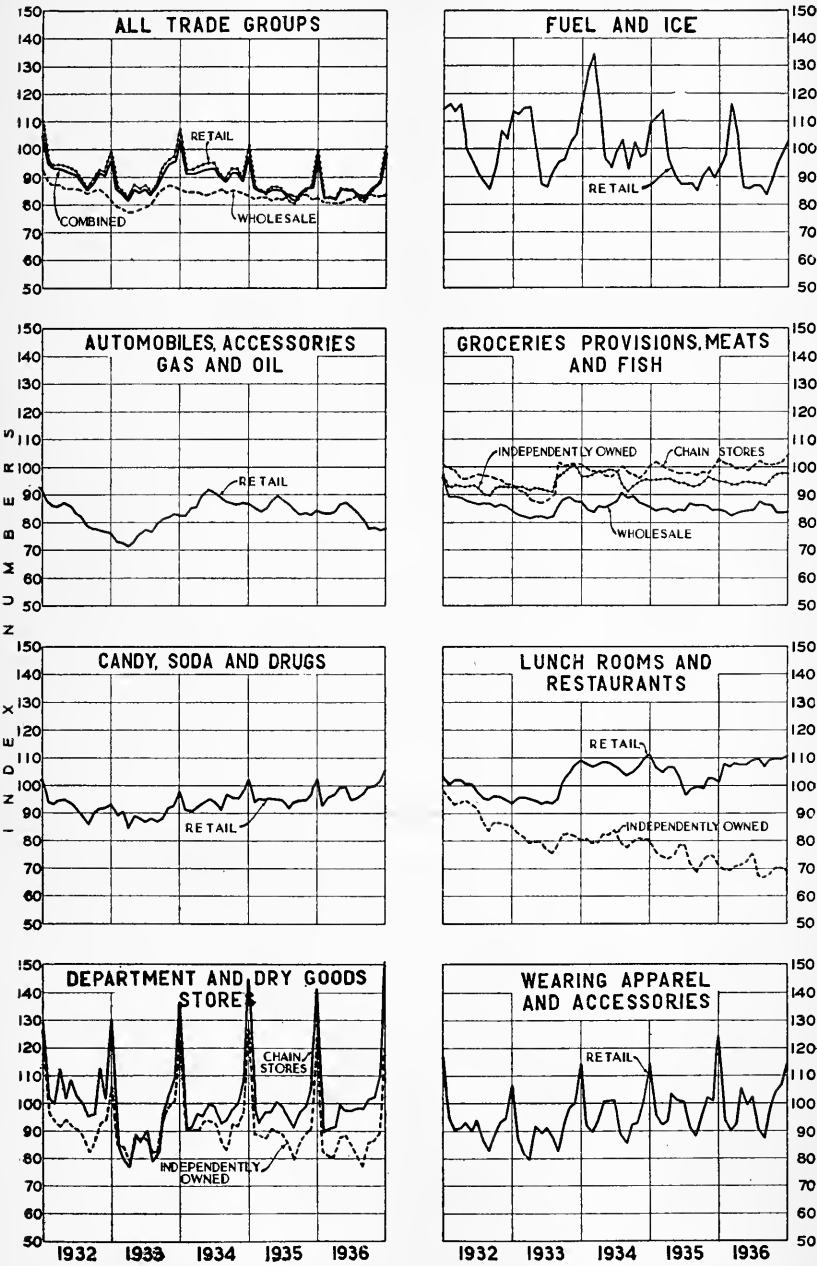


Plate 11

TRENDS OF TOTAL WAGES PAID IN WHOLESALE AND RETAIL
TRADE IN MASSACHUSETTS: 1932-1936

Base: September, 1931 = 100

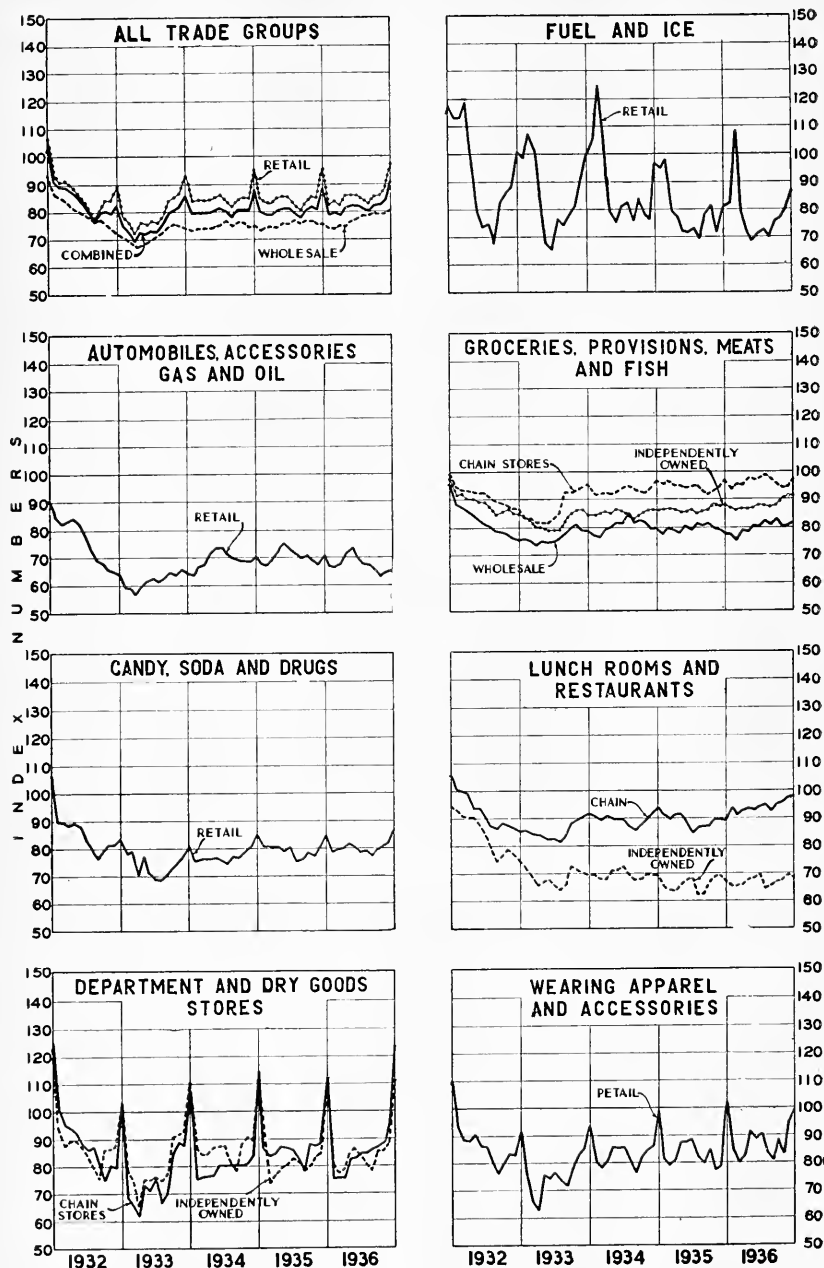


Plate 12

TRENDS OF EMPLOYMENT, TOTAL WAGES PAID, AND MAN-HOURS WORKED IN BUILDING CONSTRUCTION: BY MONTHS; APRIL, 1927-DECEMBER, 1936

Base: Average for Year 1930 = 100

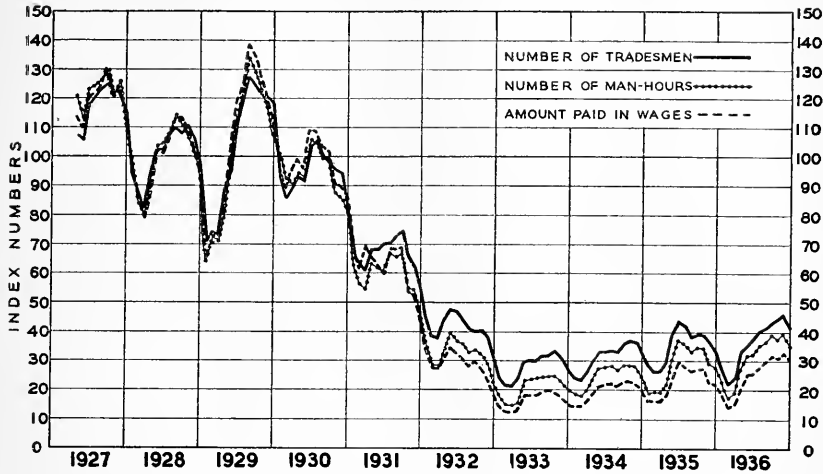


Plate 13

TREND OF PROSPECTIVE BUILDING IN 55 MUNICIPALITIES IN MASSACHUSETTS, ALL CLASSES OF PROJECTS COMBINED: 1927-1936

Base: Average for Year 1927 = 100

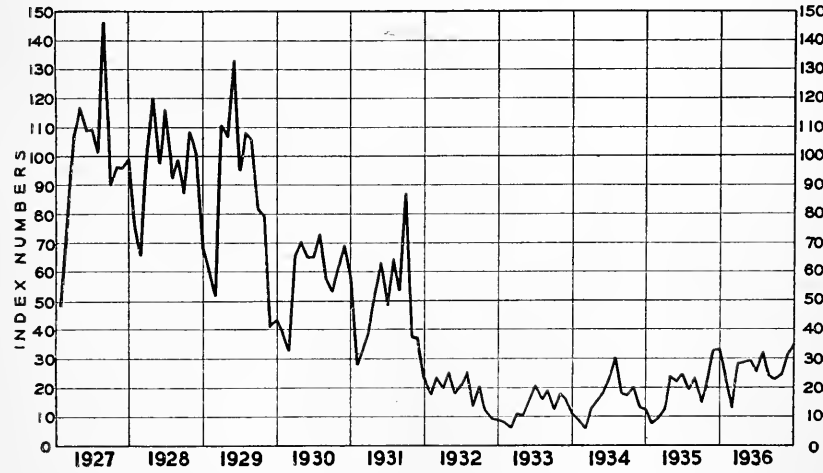


Plate 14

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID BY
PUBLIC UTILITY COMPANIES, 1932-1936

Base: Average for Year 1930 = 100

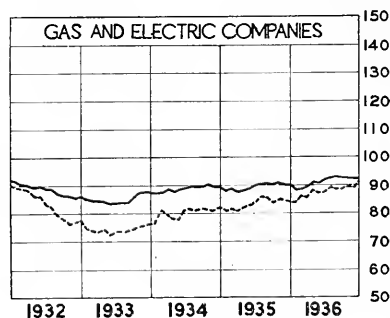
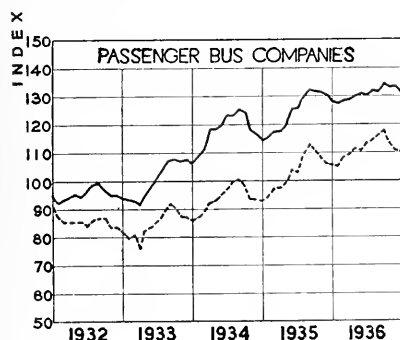
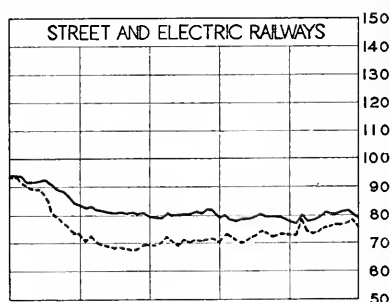
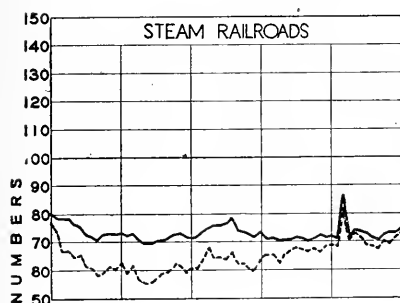
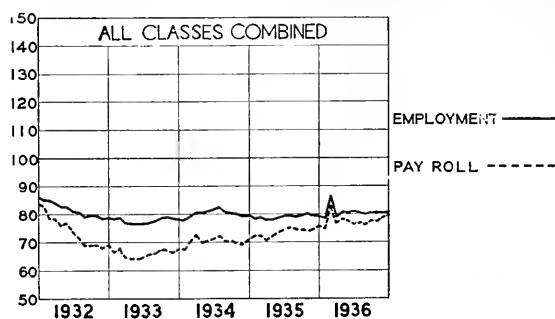


Plate 15

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN
MUNICIPALITIES: 1932-1936

Base: September, 1931 = 100

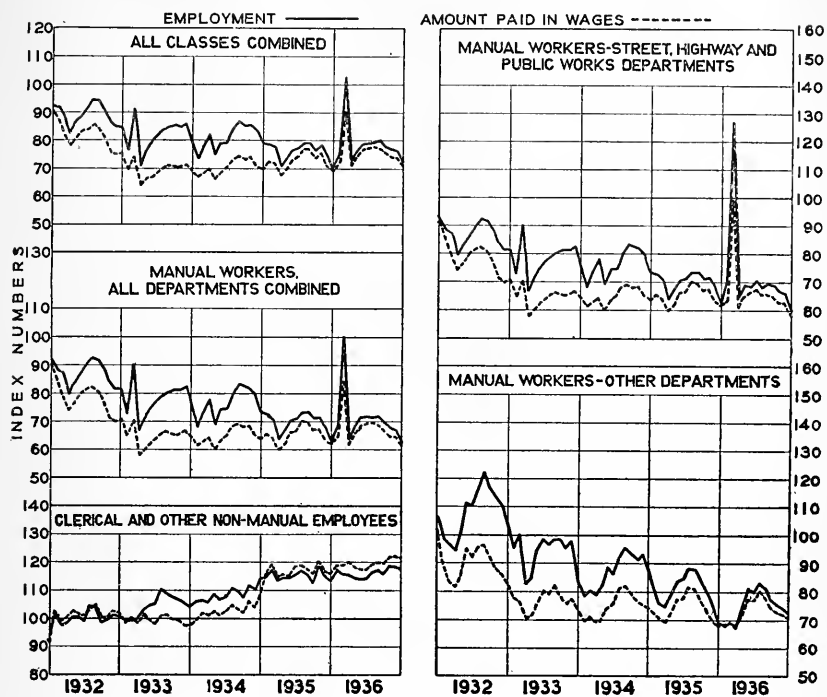
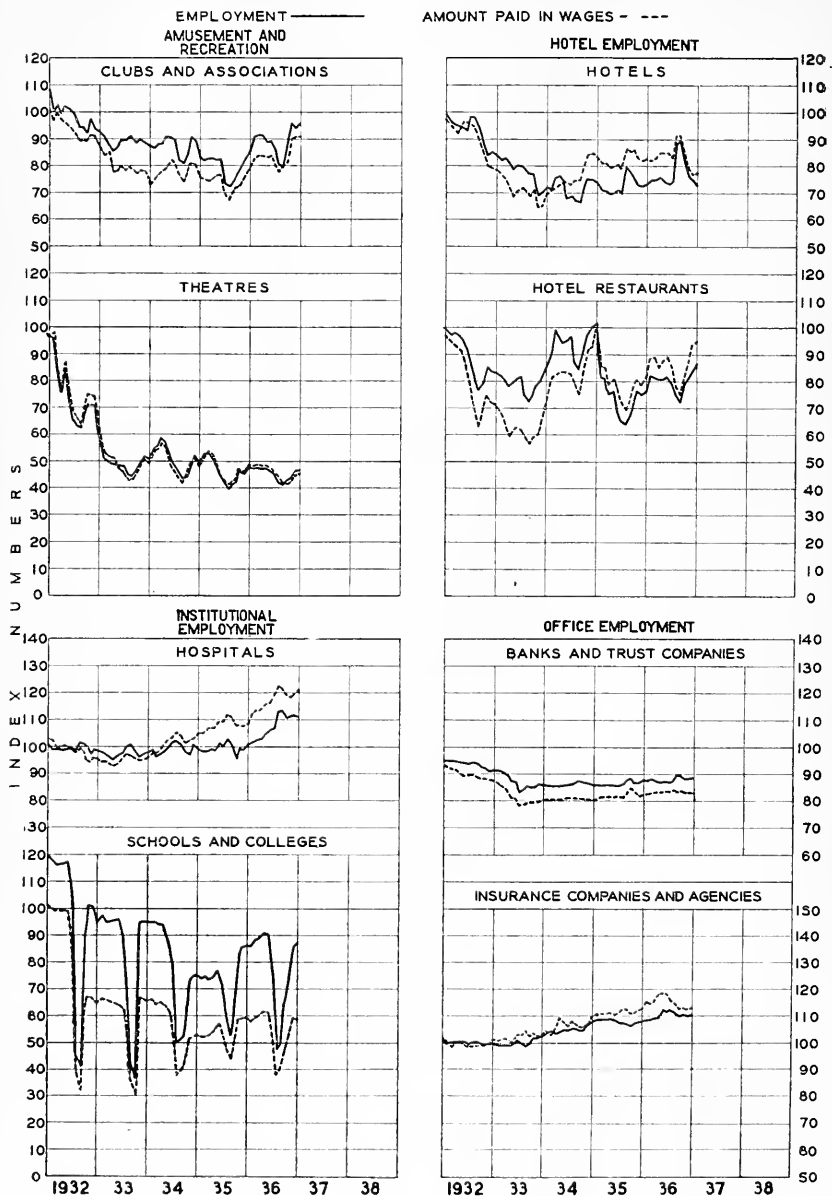


Plate 16

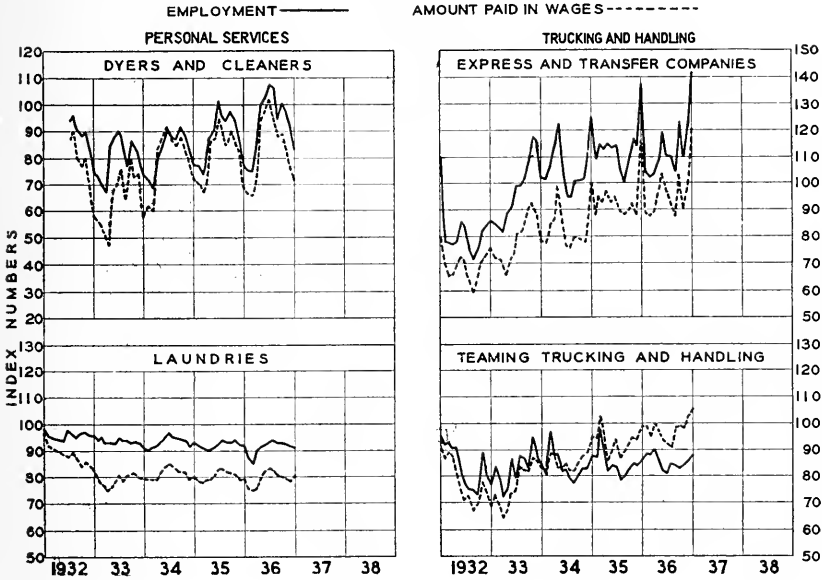
TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN 12 MISCELLANEOUS CLASSES OF EMPLOYMENT IN MASSA- CHUSETTS: 1932-1936

Base: September, 1931 = 100



TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN 12 MISCELLANEOUS CLASSES OF EMPLOYMENT IN MASSACHUSETTS: 1932-1936 (Concluded)

Base: September, 1931=100



REPORT OF THE DIVISION OF STANDARDS

JOHN P. McBRIDE, *Director of Standards*

INTRODUCTION

The usual activities were maintained during the year. Some difficulty was encountered with shortweight butter coming from the creameries outside of the commonwealth, due in part to faulty packing and moisture loss. The matter was speedily corrected by repacking to proper weight and correction made in methods of packing at the point of origin, insuring future shipments to be of correct weight. It was also noted, during the year, that grain and feed was handled in grocery stores in prepared bags of twenty-five pounds. Reweighing showed discrepancies between the marked weight and the actual weight, due chiefly to moisture loss. This commodity, heretofore, was sold in feed and grain stores, where the average temperature maintained is much less than the temperature maintained in the ordinary grocery store. Cognizance will be taken of the added moisture loss and excess grain will be packed in anticipation of this loss so that the commodity, when sold, will conform to the marked weight. This the packers have agreed to do. The development of merchandising ale and beer in cans occasioned remeasurement of this commodity and, in many instances, tests showed the actual content to be appreciably less than the marked content of twelve fluid ounces. For the purpose of checking this commodity by weight, a content factor of twelve and three-fourths avoirdupois ounces was used, with an allowance of three ounces for the can. I believe this condition to have been due to the novelty of the method of packing in cans, and correction was immediately made so that the industry has now equipped itself with devices to check-weigh cans after leaving the pasteurizer; which devices automatically reject the short cans. The recently enacted law, requiring the sale of meats and poultry at retail by weight determined at the time of sale, has been successful, except that confusion exists by reason of the persistence of the dealers in advertising poultry at a price per unit. The aim of this law was to acquaint the public with the weight of the purchase and not, of course, to dictate to the dealer the price he should receive. The form of advertising indulged in by the dealers has been such as to indicate that weight was not an element. It is expected that co-operation will be received so that an indication of the weight will appear in the advertising, making unnecessary legislation specifically demanding that the advertising shall include a statement of weight.

One of the trends in merchandising is the final preparation of the merchandise in a place removed from the purchaser's view. This practice is conducive to fraud as it offers an opportunity to deliver to the customer, merchandise other than that originally selected. Complaints have been received, particularly in relation to poultry, to the effect that the poultry originally purchased has been removed to a rear room for the purpose of dressing, and that the ultimate delivery has not been the poultry originally selected. That such a practice should not continue is important, from the standpoint of both quality and quantity, and legislation is contemplated to require, when the purchaser is present, that food products shall be trimmed, cleansed or dressed within reasonable visibility of the intended purchaser. I do not believe that we can legislate honesty, but I am of the opinion that legislation which will remove the opportunity for dishonesty will minimize this evil. Effort is constantly being made to educate the public to watch their purchases and the weighing operations in relation thereto, and it is interesting to note that co-operation is received from the manufacturers of devices in complying with the requirements as to the visibility of reading elements on weighing and measuring devices. The most noteworthy along this line is the computing gasoline device which clearly indicates the unit sale price, quantity delivered and total sales price. Specifications on liquid-measuring devices require that the reading elements shall be of such size and style, and shall be so located and disposed that they are clearly visible to and readable by the customer from any position which he may reasonably be expected to assume, and in the case of retail devices, this position is defined. I believe that similar provisions should be made a matter of law in relation to all weighing and measuring devices used in retail establishments. This would tend to quicken the public mind to the advantage of watching purchases and bring the transaction entirely into the open. Our work can be materially

aided by a purchasing public which is weights-and-measures-minded. It is my thought that it is entirely within the range of reasonable expectation that further improvement along the line of customer-reading facilities will be found in computing scales, perhaps similar to the accomplishment of the computing pump. If and when this is accomplished it will cure the situation where some individuals in retail stores commit petty thefts by mentally adding a few cents to the actual price reading as indicated on the present type of computing scale.

Considerable time has been devoted to surveillance over the distribution of heating oil for domestic and industrial use. Compiled figures show that during the heating year 1935-36 heating oil consumption for home heating was 650 million gallons, an increase of 150 million gallons over the previous heating year, all of which oil is measured either by bucket, compartment or metering system. Exhaustive tests have been made of the various meter systems and exacting requirements have been laid down on systems involving power operated pumping units in the matter of air and vapor elimination before reaching the measuring chamber. Some types of air eliminators have been rejected because of lack of efficiency when subjected to tests with compartment lines open to empty and full compartments at the same time. The industry, however, has developed selective valve controls in the manifold preventing the opening of more than one compartment line valve at any one time, which satisfactorily meets this situation and several types of air eliminators have been developed which function efficiently when liquid is drawn from more than one compartment at a time.

Revenue received from all sources again showed an increase over that received during the preceding year and, by virtue of a decision by our Supreme Court on November 30th clarifying the hawker and pedler license law, it is anticipated that a marked increase in revenue will be received during the next year.

On August 1st Inspector John J. Cummings was retired from the service of the commonwealth by the operation of law, having reached the retirement age. Inspector Cummings has spent twenty-nine years of his life in weights and measures work; three years as City Sealer of Beverly and twenty-six years as Inspector of Standards. He rendered notable service in the cause of weights and measures and was one of the pioneers in the activities of leather measuring operations. He was frequently consulted in legislative planning along this and other lines by authorities in several states of the Union. He leaves the service of Weights and Measures his debtor and a splendid testimonial of the esteem in which he was held by his associates was tendered him at the Hotel Manger in Boston on the eve of his retirement. Inspector Cummings's long experience and ability developed an amazing knowledge of all phases of weights and measures activities which makes his loss keenly felt. He was exacting, yet patient, and many now engaged in weights and measures activities in this commonwealth have benefited by instructions received from him.

LEGISLATION ENACTED IN 1936

The following legislation of particular interest to Weights and Measures officials was enacted during the 1936 legislative session:

Chapter 72, changing the date of the report year of Sealers of Weights and Measures to the Director of Standards. Heretofore the sealers' report was of the work performed for the year ending November 30th. This change was requested by the sealers to conform to their municipal year ending December 31st. Chapter 73, which added to existing sizes of glass bottles or jars used in the sale of lubricating oil a jar of one gallon capacity. This legislation was at the request of the industry to meet the demands of an additional size of this type jar. Chapter 74, requiring that holders of disabled veterans' licenses obtain a written authority from the chief of police in the various cities and towns where such licensees desire to sell on any public street or sidewalk. This chapter also amended existing law by requiring applicants for this special license to be residents of this commonwealth for a period of not less than one year immediately preceding the date of application. This legislation aims to control the situation involving nuisances created by the operators in soliciting the public on the pretense that they are operating in behalf of a charitable cause. Chapter 176, providing that shucked scallops and quahaugs in the shell shall be sold only by weight. The legislation was petitioned by the fishermen

of the Cape district to overcome difficulties they were encountering in the sale of shucked scallops and quahaugs by measure. Chapter 218, Redefining the term "Temporary or Transient Business" so that the time clause therein shall read "a period of at least twelve consecutive months," rather than "nine months in each year." This change will remove the confusion existing by reason of the varying interpretations of the phrase "nine months in each year" and by reason of a change in the tax statutes establishing the tax date of January 1st. This new language would bring a person either within the transient vendor license law or subject to local taxation.

DIVISION PUBLICATIONS

The only publication during the year was the Annual Report of the Director of Standards for the year ending November 30, 1935, and Bulletin No. 31 containing the full text of the laws of special interest to weights and measures officials enacted in 1936. A complete list of city and town abbreviations to be employed on sealing dies; suggestions in relation to weights and weighing apparatus used by jewelers and pawn brokers; instructions as to the proper method of testing tank truck meter systems with special reference to power operated units under conditions involving restricted valve openings and varying rates of liquid flow; a supplementary list of approved and disapproved devices, and other pertinent information to sealers.

CLINICAL THERMOMETERS

Manufacturers authorized to MASS SEAL clinical thermometers are required to report to this office all sales and shipments of clinical thermometers upon which they have affixed the seal mark. These reports show that during the past year sales and shipments of 245,072 such thermometers were made, of which number 117,688 were sold in Massachusetts and 127,384 were sold in other states and the Dominion of Canada. These figures show a substantial increase over the previous year. Eight manufacturers authorized to MASS SEAL thermometers applied for authority to include other types of clinical thermometers and were authorized to affix such seal mark upon eighteen new or improved types. One additional manufacturer was authorized to use the manufacturer's seal on clinical thermometers and one application from a new manufacturer was pending at the close of the fiscal year.

LABORATORY WORK

Calibration of Standards for Cities and Towns

ARTICLES	<i>Tested</i>	<i>Adjusted</i>	<i>Sealed</i>	<i>Condemned</i>
Avoidupois weights	944	190	937	7
Apothecary weights	30	—	30	—
Metric weights	17	—	17	—
Liquid measures	5	—	5	—
Totals	996	190	989	7

Clinical Thermometers

DESCRIPTION	<i>Tested</i>	<i>Passed</i>	<i>Rejected</i>	<i>Per Cent Passed</i>
Massachusetts seal	3,043	2,792	251	91.09
Unsealed	617	577	40	93.51

The majority of the unsealed thermometers are submitted by manufacturers in connection with applications for authority to affix the MASS SEAL, and the high percentage of such thermometers passing test, presumably indicates that such thermometers were carefully inspected and tested before submission.

Fees received for testing and certification of clinical thermometers to be on sale in this commonwealth amounted to \$167.55.

Cans, Cartons and Other Containers, Measures and Weighing and Measuring Devices submitted in connection with Manufacturers' Applications for Approval or for Authority to Affix the Manufacturer's Seal Thereon.

ARTICLES	<i>Tested</i>	<i>Accurate</i>	<i>Inaccurate</i>
Cartons for use as measures in sale of ice cream, etc.	110	88	22
Computing scale chart	1	1	—
Chemists' balance	1	—	1
Apothecary graduates	6	—	6
Milk jars	3	3	—
Oil jars	3	2	1
Coin operating vending and amusement machines	6	6	—
Totals	130	100	30

Miscellaneous Tests

	<i>Tested</i>	<i>Accurate</i>	<i>Inaccurate</i>
Automatic test-measures for gasoline and oil meters, etc.	5	5	—
Avoirdupois weights	63	62	1
Metric weights	9	2	7
Apothecary graduates	5	1	4
Metric graduates	2	—	2
Scales	3	1	2
Linear measures	27	27	—
Lobster measures	50	50	—
Shellfish rings	50	50	—
Refrigerator thermometer	1	1	—
Standard clinical thermometer for manufacturer	1	1	—
Maple syrup containers, glass	12	6	6
Capacity of ale cans determined	170	101	69
Ice cream cans	6	1	5
Totals	404	308	96

Other laboratory work included 45,678 yards of thread measured, 6 samples coal inspected, old gold weighed to settle a dispute, 5 lots of gauze remeasured.

FIELD WORK OF INSPECTORS

Large Capacity Scales

The test truck visited 155 cities and towns and tested 473 scales. This represents the largest number of heavy capacity scales tested in any one year. Particular attention on these tests was directed to the sections which were in the flood area of 1936, as many coal yards are located along the water-way and the scale equipment in some instances had been entirely submerged. Tests showed 226 scales accurate; 136 in need of minor adjustments, and 111 requiring major repairs; these latter being principally in the flood area where it was found that the receding flood waters had left deposits of silt on pivots and bearings pitting the parts so that replacement was necessary. It was also found that the wagon type of scale is being subjected to auto truck weighing. This, in many instances, amounts to an over-load on these scales and consequent strain promotes inaccuracy. A great many of these wagon type scales are installed in wooden frame work which has rotted and will not stand the task of auto truck weighing. Wherever possible minor adjustments were made by the inspectors thus saving the users time and expense as well as saving time to the division in the progress of the test truck by minimizing the necessity of return trips after adjustments had been made. The scales tested comprised large capacity scales at state Institutions, coal yards, and industrial plants, and the Public Works Department were notified as to the condition of scales in various locations which might be used in re-weighing road building materials.

The usual practice of establishing master scales in locations convenient to sealers was followed out, furnishing a convenient means for comparative tests. The law prohibiting the trailer has brought into being the so-called semi-trailer which has a longer wheel base and new large scale construction should contemplate a greater capacity and longer decks. Our scale testing equipment has now been in operation four years and each year its work has increased. This, of course, is entirely satisfactory and we are now in position to know accurately the condition of large capacity scales throughout the commonwealth. Similar equipment has recently gone into use by the National Bureau of Standards, the city of New York, and the state of Illinois.

Gasoline and Oil Meters and Tank Trucks

Our equipment for bulk station meter systems, tank truck meter systems and compartments, consists of two portable test tanks with electric motor driven pumping units, one tank of 100-gallon capacity and one tank of 50-gallons capacity. Household use of fuel oil has increased rapidly as will be noticed from figures showing consumption during the heating year 1934-35 at 500 million gallons, and during the heating year 1935-36 at 650 million gallons. In order to keep pace with this increase it is apparent that cities and towns must equip their sealers with proper testing mediums. Many of the cities and larger towns are now so equipped and it is expected that more will appreciate this necessity so that we can keep this phase of weights and measures activities within control. Our test tanks visited forty-six cities and towns and tested four hundred fifty-two bulk storage systems and tank truck meter systems and seven vehicle tank compartments. Repairs were necessary on ninety-seven of the meter systems tested and adjustments required on two hundred thirty-five in order to bring their indications of quantity delivered within established tolerances.

Other activities of the Inspectors in the field included:

Number of Inspections: — Stores, 1,611; pedlers, 787; transient vendors, 256; net weight markings, 16,274; coal certificates, 181; coal (quality), 3; total, 19,112.

Weighing and Measuring Devices: — Sealed, 5,533; unsealed, 2,212; total inspected, 7,745. Accurate, 2,223; inaccurate, 427; total tested, 2,650.

COMMODITY	<i>Reweighings</i>			
	<i>Number</i>	<i>Correct</i>	<i>Under</i>	<i>Over</i>
Coal (loads)	180	25	63	92
Coal (in bags)	223	15	146	62
Packages of food, etc.	15,642	6,233	5,104	4,305
Totals	16,045	6,273	5,313	4,459

COMMODITY	<i>Remeasurements</i>			
	<i>Number</i>	<i>Correct</i>	<i>Under</i>	<i>Over</i>
Alcoholic beverages	33	2	13	18
Totals	33	2	13	18

Inspectors supervised the measuring of 1,201 leather skins to settle disputes.

ARTICLES	<i>State Institutions</i>			
	<i>Tested</i>	<i>Adjusted</i>	<i>Sealed</i>	<i>Condemned</i>
Scales	339	66	318	22
Weights	1,014	102	1,006	8
Gasoline pumps	8	—	7	1
Gasoline meters	1	—	1	—
Liquid measures	11	—	6	5
Oil pumps	1	—	1	—
Totals	1,374	168	1,339	36

Inspections and tests were made of 56 gasoline and fuel oil meter systems installed under working conditions and submitted for approval under General Laws chapter 98, section 29. There were 43 applicants for certificate of fitness as measurers of leather examined, 27 of whom passed and 16 failed to pass. Certificates were issued to the 27 successful applicants. There were 66 complaints investigated involving violations of the various laws. Some of these complaints alleged inferior quality of coal but our investigations showed that the difficulty with the coal was occasioned by a cause other than the quality of the coal. It is to be noted that marked improvement in coal sold in this commonwealth has been attained. All complaints were promptly investigated and appropriate action taken in relation thereto.

PROSECUTIONS

The inspectors prosecuted 22 cases resulting in 18 findings of guilty, 1 not guilty and 3 filed "nolo-contendere." The court disposed of these cases by imposing total fines of \$290, filing 4 cases after defendants obtained licenses, and 1 defendant was given six months suspended jail sentence and placed on probation for two years.

NATURE OF OFFENCE	Number of Complaints	Convicted	Discharged	Pleaded Nolo	Filed	Fines imposed	Suspended Sentence	Appealed	Continued
Giving insufficient weight	9	8	-	1	3	145	1	-	-
Attempt to give insufficient weight	2	1	-	1	-	40	-	-	-
Failing to deliver coal certificate	1	1	-	-	1	-	-	-	-
Exposing for sale bread not properly marked	2	2	-	-	-	60	-	1	-
Possession of false scale	1	1	-	-	-	10	-	-	-
Conducting transient business without license	5	4	-	1	2	35	-	-	1
Peddling without a license	2	1	1	-	1	-	-	-	-
	22	18	1	3	7	290	1	1	1

OFFICE WORK

Weighing and measuring devices approved as to design and construction under section 29, chapter 98, General Laws, included 7 spring scales, 1 express scale, 1 computing scale, 5 retail meter systems, 38 computing meter systems, 2 bulk storage meter systems, 11 tank truck meter systems, 1 computing scale chart and lens, and 1 automatic liquid measure.

Coin operated devices approved under section 283, chapter 94, included 1 cigarette vending machine, 3 mint vending machines, and 3 devices for amusement only.

Under section 13, chapter 98, 8 manufacturers of clinical thermometers were authorized to affix the manufacturers' seal mark upon 18 additional types of clinical thermometers, and 1 new manufacturer was authorized to affix MASS SEAL on clinical thermometers.

Under section 14A, chapter 98, 1 manufacturer of glass oil jars was authorized to seal certain of his products.

Under section 22, chapter 98, there were 18 sizes and types of paper or fibre cartons approved for use as measures in the sale of ice cream and certain other specified articles.

One chemical scale submitted for approval was disapproved.

Under section 3, chapter 101, \$2,500 in cash was deposited and surety bonds amounting to \$175,500 filed with the Director by applicants for transient vendor licenses, these deposits and bonds to be subject to legal claims incurred in the business conducted under such licenses. As shown by the detailed financial statement which concludes this report, a total of \$117,808.05 was received from all sources including fees for hawkers and pedlars and transient vendors' licenses, transfer fees, pedlars' license plates and badges and fees for testing clinical thermometers. Hearings were given to 70 firms and individuals upon complaints of violations of laws governing the labeling of bread, food in package form, ale and beer in cans, and minor infractions of weights and measures law.

LICENSES

Transient Vendors

There were 356 transient vendor licenses issued and \$8,900 received in fees therefor. Five persons were prosecuted for conducting a transient business without proper license.

Hawkers and Pedlers

There were 4,665 hawker and pedlers' licenses and 985 transfers of licenses for which fees were received, comparable with 4,500 licenses and 847 transfers in the preceding year. Special licenses were issued, without fee, to 354 disabled veterans of the World War, 43 less than issued in 1935.

General Laws, chapter 101, section 13, defines a hawker and pedler as follows:—

"Except as hereinafter expressly provided, the terms 'hawker' and 'pedler' as used in this chapter shall mean and include any person, either principal or agent, who goes from town to town or from place to place in the same town selling or bartering, or carrying for sale or barter or exposing therefor, any goods, wares or merchandise, either on foot, on or from any animal or vehicle."

In instances where persons called on the same householders selling their goods, the argument was advanced that this did not constitute hawking and peddling. The decisions of the courts appeared to support the position assumed by this division, that this did constitute the act of hawking and peddling, in that the element of carrying for sale was present under these circumstances. No Supreme Court decision exactly bearing on the situation, where the call was continually on the same householders, has been rendered and a test case was arranged through this office, the sealer of weights and measures of New Bedford and counsel for a group of oil dealers. This case was submitted to the Third District Court of Bristol on April 2, 1936, upon an agreed statement of facts as follows:—

"The defendant is engaged in the business of selling fuel and range oil in the City of New Bedford; carrying said oil in a vehicle; calling on householders who live in various parts of the City of New Bedford; that said householders have previously agreed with the said defendant that they will purchase their oil requirements from him, and at the time of the call the defendant ascertains the quantity of oil desired, which is then and there delivered, and payment therefor is then made or a bill is subsequently rendered."

This case reached the Supreme Court for argument on October 26, 1936, and decision was handed down by that court on November 30th in the following language:—

"The circumstances that householders, living in various parts of the City of New Bedford, had previously agreed with the defendant that they would purchase oil from him, that at the time of calling upon a purchaser the defendant ascertained the quantity of oil which the purchaser desired and then and there delivered it and that he then received payment or subsequently rendered a bill, does not exempt the defendant from liability under the statute."

This decision will undoubtedly increase the number of hawkers' and pedlers' licenses during the coming year with a substantial increase in revenue to the commonwealth and the cities and towns.

EDUCATIONAL AND CO-OPERATIVE ACTIVITIES

During the year the usual co-operation was extended to officials of this and other states, and with various manufacturers and business organizations. I attended the National Conference of Weights and Measures Officials of the United States at Washington and, with the Inspectors, was in attendance at the Annual Conference of the Massachusetts Association of Sealers of Weights and Measures at Springfield. These conferences are of distinct educational value to all persons in attendance, permitting an interchange of views and promoting uniform enforcement of law. Legislation was pending before the Committee on Taxation seeking new sources of revenue and one of these measures involved the licensing of coin operated machines and operators. For the information of the committee a cross section survey was made and inspection reports submitted on 10,466 slot machines.

Talks were given before several Rotary Clubs and Chamber of Commerce groups on invitation, as well as to tank truck manufacturers and meter manufacturer's associations.

At the request of the Milk Control Board investigations were made in certain sections of the commonwealth in the matter of disputes between producers and dairies as to the method of determining the quantity of milk sold. Remeasurements were made of leather to settle disputes between a Massachusetts shipper and out of state purchaser. Tests of weighing and measuring apparatus were made at the request of the Naval Station at Hingham and the Navy Yard at Charlestown.

LOCAL SEALER OF WEIGHTS AND MEASURES

The following summary of work performed by local sealers of weights and measures is compiled from the annual reports which they are required, by section 37, chapter 98 General Laws, to file with the Director between the first and tenth of January in each year. The sealers in the towns of Dalton, Gay Head, Hancock, Peru, and West Stockbridge failed to perform this statutory duty and, therefore, the work performed by them cannot be included in this summary.

SUMMARY OF LOCAL SEALERS' WORK

ARTICLE				
<i>Scales</i>		<i>Adjusted</i>	<i>Sealed</i>	<i>Non-sealed</i> <i>Condemned</i>
Platform (over 5,000 lbs.)	.	455	2,569	68 110
Platform (100 to 5,000 lbs.)	.	3,916	20,964	784 725
Counter (100 lbs. or over)	.	211	1,878	36 46
Counter (under 100 lbs.)	.	1,659	14,414	301 336
Beam (100 lbs. or over)	.	176	1,652	75 39
Beam (under 100 lbs.)	.	41	599	16 4
Spring (100 lbs. or over)	.	305	4,569	50 332
Spring (under 100 lbs.)	.	4,259	28,147	198 996
Computing (100 lbs. or over)	.	35	386	4 5
Computing (under 100 lbs.)	.	4,263	22,347	233 1,234
Person weigher (slot)	.	119	4,888	45 294
Prescription	.	148	1,965	10 35
Jewelers'	.	27	449	3 9
Totals	.	15,614	104,827	1,823 4,165

<i>Weights</i>				
Avoirdupois	.	5,161	121,847	1,148 568
Apothecary	.	165	21,708	23 340
Metric	.	119	9,313	87 87
Troy	.	271	6,412	61 66
Totals	.	5,716	159,280	1,319 1,061

ARTICLE				
<i>Capacity Measures</i>		<i>Adjusted</i>	<i>Sealed</i>	<i>Non-sealed</i> <i>Condemned</i>
Vehicle tanks (compartments)	.	—	1,730	— 32
Liquid measures	.	219	29,161	199 609
Ice cream cans	.	252	10,085	— 96
Glass graduates	.	—	135	— 6
Oil bottles	.	—	5,578	— 47
Milk jars	.	—	36	— —
Dry measures	.	—	861	— —
Fuel baskets	.	—	785	— 5
Totals	.	471	48,371	199 795

<i>Automatic Measuring Devices</i>	<i>Adjusted</i>	<i>Sealed</i>	<i>Non-sealed</i>	<i>Condemned</i>
Gasoline pumps	1,118	9,029	961	465
Gasoline and oil meter systems	3,762	20,696	63	1,384
Kerosene pumps	91	2,161	144	66
Lubricating oil pumps	2,045	8,678	7,972	154
Grease-measuring devices	507	2,517	217	72
Molasses pumps	5	103	31	4
Quantity stops (on measuring pumps)	2,410	41,019	—	—
Leather-measuring machine	14	311	—	13
Totals	9,952	84,514	9,388	2,158

ARTICLE

<i>Linear Measures</i>	<i>Adjusted</i>	<i>Sealed</i>	<i>Non-sealed</i>	<i>Condemned</i>
Yard sticks	—	6,379	—	118
Tapes	—	156	—	4
Taximeters	166	2,003	—	35
Cloth measuring devices	—	789	—	11
Totals	166	9,327	—	168
Grand totals	31,919	406,319	12,729	8,347

Sealing fees collected	\$59,253.46
Adjusting charges	4,720.96
Total collected	\$63,974.42

REWEIGHINGS AND REMEASUREMENTS

COMMODITY	<i>Number of Reweighings, etc.</i>	<i>Correct</i>	<i>Under</i>	<i>Over</i>
Beans	6,331	4,815	719	797
Bread	36,143	23,715	3,726	8,702
Butter	33,209	20,409	7,739	5,061
Charcoal (in paper bags)	979	953	10	16
Coal (in paper bags)	9,807	6,435	1,124	2,248
Coal (in transit)	1,559	649	220	690
Coke (in paper bags)	845	637	8	200
Confectionery	5,386	4,577	182	627
Dry commodities	18,458	15,244	848	2,366
Dry goods	111	82	13	16
Flour	6,547	4,505	766	1,276
Fruits and vegetables	11,318	7,923	1,451	1,944
Grain and feed	1,024	687	188	149
Hay	115	49	28	38
Ice	676	478	65	133
Kindling wood (in paper bags)	3,298	3,275	2	21
Lard	3,837	3,527	70	240
Liquid commodities	5,083	4,631	257	195
Meats and provisions	10,660	9,039	816	805
Potatoes	8,655	5,596	1,395	1,664
Wood (cord)	154	114	36	4
Wood (kindling)	122	111	6	5
Miscellaneous	657	540	50	67
Totals	164,974	117,991	19,719	27,264

The annual reports also show the following reweighings, remeasurements and recounts of commodities made by local sealers for municipal departments:— 4,955 loads of coal, 127 loads of hay, straw and grain, 425 loads of sand and gravel, 12 loads of broken stone, 34 loads of hot mix, 5 loads of old iron, 6 lots of leather, 22 loads of loam, 33 tank loads of fuel oil, 127 loads of cord wood, 1,490 square yards of sod and 258 miscellaneous articles.

Local sealers inspected 11,873 clinical thermometers, 2,140 coal weight certificates, 2,155 ice scales, 485 junk scales, 6,250 pedlers' licenses, 2,706 pedlers' scales, 36,886 markings of food packages, 12,701 weight statements on bread loaves, 8,141 ice cream cans, 4,555 wholesale milk cans, 9,725 milk jars, 30,003 lubricating oil bottles, 6,022 paper cartons, 11,856 markings on fuel bags, 481 transient vendors and 6,225 other miscellaneous items: tested 1,935 berry baskets, 814 climax baskets, 2,903 paper or fibre cartons, 4,065 milk jars, 1,074 lubricating oil bottles, 1,290 standard farm produce boxes, 148 United States standard barrels, 2,621 retests of gasoline and oil measuring devices after sealing, and made 1,717 other miscellaneous tests.

PROSECUTIONS BY LOCAL SEALERS

NATURE OF OFFENCE	Number of Complaints	Convicted	Discharged	Pleaded nolo	Filed	Defaulted	Fines imposed	Suspended Sentences	Appealed
Giving insufficient weight	27	20	5	2	6	—	289	1	—
Giving insufficient measure	6	4	2	—	—	—	110	—	—
Possession of false scale	5	5	—	—	1	—	54	—	—
Possession of false measure	1	1	—	—	—	—	25	—	—
Using unsealed scales	2	2	—	—	1	—	25	—	—
Using unsealed measure	1	1	—	—	—	—	10	—	—
Failure to issue certificate in sale of coal	2	2	—	—	1	—	25	—	—
Failure to issue certificate in sale of cord wood	3	3	—	—	—	—	10	1	—
Selling poultry by count	1	1	—	—	—	—	10	—	—
Selling apples by measure	1	1	—	—	1	—	—	—	—
Conducting transient business without license	2	2	—	—	1	—	10	—	—
Peddling without a license	41	38	2	1	10	—	425	—	2*
Furnishing minors merchandise to sell without license	9	8	—	1	2	—	160	—	—
Refusing to show license to proper authority	1	1	—	—	1	—	—	—	—
Totals	102	89	9	4	24	—	1,153	2	2

*Fine reduced in superior court from \$25 to \$20. The other appealed case went to the Supreme Judicial Court where the original finding was sustained.

FINANCIAL STATEMENT OF THE DIVISION OF STANDARDS

Receipts

1,151 State (hawkers' and pedlers') license fees	\$57,550.00
2,075 County (hawkers' and pedlers') license fees	18,196.00
668 City (hawkers' and pedlers') license fees	17,330.00
771 Town (hawkers' and pedlers') license fees	9,352.00
356 Transient vendors' license fees	8,900.00
985 Transfer fees	985.00
Total receipts from license fees	\$112,313.00
Fees received for licenses not issued	205.00
Fees received for testing clinical thermometers	167.55
Received for pedlers' plates and badges	5,122.50
Total receipts	\$117,808.05
Court fines for violations of hawkers' and pedlers' laws	620.00
Total	\$118,428.05

Payments

To State Treasurer:

1,151 State license fees	\$57,550.00
2,075 County license fees	2,075.00
668 City license fees	668.00
771 Town license fees	771.00
356 Transient vendors' license fees	8,900.00
985 Transfer fees	985.00
Fees received for licenses not issued	205.00
Fees received for testing clinical thermometers	167.55
Pedlers' plate and badge money	5,122.50

Total payments to State Treasurer	\$76,444.05
To County Treasurers	\$16,121.00
To City Treasurers	16,662.00
To Town Treasurers	8,581.00

Total paid to county, city and town treasurers	41,364.00
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Total payments	\$117,808.05
Total paid direct to state treasurer for court fines	620.00

\$118,428.05

SUMMARY

Appropriation, personal services	\$32,100.00
Expended	31,951.61

Unexpended balance	\$148.39
Appropriation, general expenses	13,251.57
Expended	11,748.72

Unexpended balance	\$1,651.24
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Total income to the commonwealth from licenses, etc.	\$76,444.05
Total expenditures	43,700.33

Excess of income over expenditures	\$32,743.72
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REPORT OF THE DIVISION ON THE NECESSARIES OF LIFE

RALPH W. ROBERT, *Director*

AUTHORIZATION

During periods of rising commodity prices, there is a tendency to misunderstand the powers and duties of the division and to place the responsibility for increased prices upon state government. This division is distinctly a fact-finding agency whose power is reflected in public reaction and compliance to boycott suggestion when publication of facts indicate that exploitation or profiteering exist in the merchandising of certain commodities.

To prevent any delusion regarding the extent of the division's authority, sections of chapter 410 of the acts of 1930, as amended by chapter 362 of the acts of 1933, are published herewith:

SECTION 9E. — The division shall study and investigate the circumstances affecting the prices of fuel, gasoline and refined petroleum products and other commodities which are necessities of life. It may inquire into all matters relating to the production, transportation, distribution and sale of the said commodities, and into all facts and circumstances relating to the cost of production, wholesale and retail prices and the method pursued in the conduct of the business of any persons, firms or corporations engaged in the production, transportation, or sale of the said commodities, or of any business which relates to or affects the same. It shall also study and investigate the circumstances affecting the charges for rent of property used for living quarters, and in such investigation may inquire into all matters relating to charges for rent.

SECTION 9F. — The division shall have authority to give hearings, to administer oaths, to require the attendance and testimony of witnesses and the production of books and documents and other papers, and to employ counsel. Witness summonses may be issued by the director or by any assistant by him designated and shall be served in the same manner as summonses for witnesses in criminal cases issued on behalf of the commonwealth, and all provisions of law relative to summons issued in such cases shall apply to summonses issued hereunder, so far as they are applicable. Any justice of the supreme judicial court or of the superior court may, upon application of the director, compel the attendance of witnesses and the giving of testimony before the division in the same manner and to the same extent as before said courts.

SECTION 9G. — The division shall investigate all complaints made to it, and may publish its findings. It shall keep in touch with the work of federal and municipal and other agencies dealing with the necessities of life, and give them such assistance as it deems advisable; and may invoke the aid of said agencies and of civic and other organizations.

CHAPTER 362. — AN ACT RELATIVE TO THE PROTECTION OF THE PUBLIC IN THE EVENT OF A FOOD OR FUEL EMERGENCY

Whereas, The deferred operation of this act would defeat its purpose, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public health, safety and convenience.

Chapter twenty-three of the General Laws is hereby amended by striking out section nine H, as appearing in the Tercentenary Edition thereof, and inserting in place thereof the following:—

SECTION 9H. — Whenever the governor shall determine that emergency exists in respect to food or fuel, or both, he may, with the approval of the council, by a writing signed by him, designate the director of the division on the necessities of life to act as an emergency food or fuel administrator, or both, and thereupon the director shall have, with respect to food or fuel, or both, as the case may be, all the powers and authority granted by the Commonwealth Defense Act of nineteen hundred and seventeen, being chapter three hundred and forty-two of the General Acts of nineteen hundred and seventeen, to persons designated or appointed by the governor under section

twelve or said chapter three hundred and forty-two; and the governor may revoke such written authority at any time. During such an emergency, the governor, with the approval of the council, may make and promulgate rules and regulations, effective forthwith, for the carrying out of the purposes of this section and for the performance by the commonwealth and the cities and towns thereof of any function affecting food or fuel authorized under Article XLVII of the amendments to the constitution. Violation of any such rule or regulation shall be punished by a fine of not more than five hundred dollars or by imprisonment for not more than six months, or by both. The provisions of said chapter three hundred and forty-two are hereby made operative to such extent as the provisions of this section may from time to time require.

SUMMARY OF ACTIVITIES

The division in its reports of 1934 and 1935 summarized in detail the effect of governmental activities with respect to the consumer, and in this report it will only attempt to give the outstanding activities of the division during the year.

To comply with the statute under which the division was created, the duties and activities are so varied that almost every type of case in which our citizens feel that they are aggrieved comes within our jurisdiction for investigation. About 12,000 cases requiring personal attention were handled by the division during the year with nearly every case being investigated and satisfactorily adjusted. These cases involved rent and housing disputes; cleansing and dyeing cases; automobile finance cases; misunderstandings between buyers and sellers; clothing; food; fuel and other complaints pertaining to the "necessaries of life." Each case has been given individual attention.

During 1936, the division, in addition to its regular routine duties, was called upon to perform several special assignments which it was able to carry out without extra appropriation and with only a small expenditure for temporary employees.

Early in the year when our commonwealth and its people witnessed the greatest flood in its history, the Director, under the statute which makes such action possible, was declared Emergency Food and Fuel Administrator by the Governor and Council with full authority to protect the welfare and property of our citizens.

While the extra duties and obligations placed upon the division at this time were multifold, it was able to perform these duties at a minimum cost to the commonwealth through the use of other State and cities' employees who were organized over night into a smoothly operating organization.

Although these additional duties required long hours for both the Director and the small staff of the division, every complaint was given the same consideration as under normal conditions and followed through to a conclusion. Only a small expenditure from the special appropriation set up for this emergency was used by the division, and this largely for equipment and traveling expenses. A more detailed report of the flood activities of the division is included in this report.

During February the division received complaints from many independent gasoline service station owners relative to price-cutting in certain localities which, it was contended, was started to ruin the business of the complainants and force them to sell to the major companies. After investigation, it was determined that such price-cutting activities were inaugurated by the individual stations rather than by the large distributors. The division obtained an agreement with all stations in certain areas to eliminate large advertising cut-price signs on a certain date, and it was found that this agreement was first violated by independent owners. This controversy in the area affected was finally settled to the satisfaction to all concerned through the efforts of the division.

In the latter part of the year, the division was called upon to take action for consumer protection when it appeared that a serious situation threatened to disrupt our milk supply. This situation was brought about when certain large distributors notified the New England Dairies and the New England Milk Producers' Association, which organizations jointly control a large amount of the available milk supply, that they would not withhold from producers, not members of those associations or pay to the association the 12c per cwt. deductions specified in their contracts. As a result of this action, a so-called strike was declared against the distributing companies, by which milk supplied by the association members was

to be withdrawn from these companies. The division lent its assistance in an arrangement to procure milk from outside sources should the shortage become acute, and at once called the matter to the attention of the Governor and Council, inasmuch as the Milk Control Board informed us that they had no authority to act in the matter and the division did not want to appear to assume the duties of another state board. After a conference of representatives of the division, the Milk Control Board and the Attorney General's Department, with His Excellency, the Governor, the entire matter was referred to the Attorney General with instructions to take criminal action, if necessary, to assure our normal milk supply.

It is apparent, as has been pointed out by the division on previous occasions, that the New England Milk Producers Association and associated organizations have attempted and are still trying to set up a hard and fast monopoly to control the milk requirements of New England. This is clearly shown by the declaration of the so-called "strike" and the diverting of all controlled milk from dealers not willing to deduct benefits for these organizations from non-member producers.

While the division believes that the farmer should receive a price for his product which will assure him a fair profit on his labor and investment, it does not believe that it is necessary to maintain these high-cost organizations at the expense of the consumer and from which benefits accruing to the producer are in doubt. It is extremely doubtful if any farmer, whether a member or non-member of these organizations, wishes to become a partner to any monopoly, and the division is informed that large numbers of these producers have signed contracts when told that there would be no market for their milk unless they became a member of these organizations. It is hoped that the Attorney General will study all phases of the situation and render a report which will benefit both consumer and producer.

During the year, the division continued its usual activities with regard to investigation of complaints relative to prices, stocks, transportation, distribution, etc. The survey of fuels used in home heating has been conducted with reports of coal and oil being obtained from distributors over six months' periods. This information in case of strikes or other interference with the regular distribution of heating fuels has placed the division in a position to cope with any emergency.

The cost of living index has been computed and distributed monthly. This index is issued free to business, welfare, municipal and other organizations throughout the state, and has been furnished upon request to business, municipal and state organizations, libraries, schools, colleges, etc., in practically every state in the Union as well as to governmental authorities which include national, state and city officials.

TREND OF LIVING COSTS

The division is required by statute to study and investigate the circumstances affecting prices of commodities which are necessities of life, and in this connection it has continued to compute and publish monthly the "cost of living index" for Massachusetts. The value of this index is best indicated by the wide demand for it during the past year, requests for current and past information being received from business, labor, welfare, civic and governmental groups, much of which is used in connection with wage and salary disputes and upon which many of these controversies are settled in arbitration.

The division has continuously recommended, however, that changed living standards be considered when the index is used for the purpose of wage adjustments, inasmuch as the base used is for 1913 and no provision has been made in the index to conform to the changed standards or items used in the compilation.

The combined index increased only slightly during the year from 138.6 in December, 1935, to 139.4 in December, 1936, this increase being largely noted in the shelter section of the budget with a slight increase in the food section. Comparable combined index numbers for 1935 and 1936 are given below:

Combined Cost of Living Index — 1913 equals 100

<i>Month</i>	<i>1935</i>	<i>1936</i>	<i>Month</i>	<i>1935</i>	<i>1936</i>
January	135.8	137.0	July	137.4	138.4
February	137.4	137.5	August	138.7	137.8
March	138.0	136.9	September	139.7	138.0
April	138.0	136.3	October	139.1	136.9
May	137.8	137.4	November	139.3	137.7
June	137.0	137.6	December	138.6	139.4

These index numbers expressed in dollars indicate that in December, 1935, \$138.60 would be required and in December, 1936, \$139.40 would be required to purchase the same quantity of commodities as cost \$100 in 1913, the base year.

Income determines the purchasing power of the consumer, and increased prices without corresponding increased income decreases the purchasing power of such income. The apparent larger number gainfully employed during 1936 at slightly better wages combined with the small increase in living costs would indicate that Massachusetts at least enjoyed a higher purchasing power than for the previous year. The outlook for gainful employment in 1937 appears the brightest for several years.

ELEMENTS OF THE BUDGET

Food. — The index for combined food prices increased during the year from 120.0 in January to 122.3 in December. This latter figure, however, was below the December, 1935, index, which was 123.9.

Expenditures in the food section of the budget represent the largest single item of expense with an allotment of 37.6% of the total allowance for all items. The amount of individual family income spent for food, however, is dependent upon the size of the family, age, and the type of employment of its members, coupled with the ability of the housewife to efficiently select and to properly prepare the daily menu.

Massachusetts cities which were formerly classed in the higher price group in the United States Department of Labor food indices, due to the fact that about 90% of our food supply is furnished by sources outside the state, are now classed in a lower price group. In the October, 1936, report, Boston with an index of 77.7 is placed fourth from low in a group of thirty-four representative cities throughout the country having food indices ranging from 90.0 to 77.0. The indices for these thirty-four cities based on 1923 to 1925 prices are given below:

1923-1925 Equal 100 — October, 1936

Denver	90.0	Norfolk	83.6
Minneapolis	89.4	New York	82.9
Louisville	88.1	Omaha	82.8
St. Louis	87.6	Detroit	82.4
Cincinnati	87.0	Manchester	82.2
Kansas City	86.5	Little Rock	82.0
Milwaukee	86.4	Butte	82.0
Baltimore	85.7	Seattle	81.4
Philadelphia	85.4	Providence	81.3
New Haven	85.2	Portland, Me.	80.6
Washington, D. C.	84.4	Atlanta	80.5
Charleston, S. C.	84.3	Jacksonville	80.1
San Francisco	84.3	Richmond	79.6
Cleveland	84.1	Boston	77.7
Indianapolis	84.1	Mobile	77.4
Chicago	83.9	Birmingham	77.0
Savannah	83.9	Los Angeles	77.0

These figures would tend to indicate that Massachusetts has overcome the food cost handicap which has existed over a long period of years.

Cold Storage. — Cold storage plays an important part in the assurance of a fresh food supply for Massachusetts, as otherwise the remote sources of supply would cause serious consequences in the event of any extended interference with the normal elaborate system of distribution necessary to supply our needs.

The State Department of Public Health is charged with the control and inspection of all food in cold storage plants and issues monthly statements on food held in storage. This monthly check on available supplies reduces to a minimum, if not eliminates, speculation and manipulation in prices through the use of warehouses. Comparative stocks of important foods in storage December 1 are given below:

<i>Commodity</i>	<i>1935</i>	<i>1936</i>
Beef	2,267,596 lbs.	2,880,283 lbs.
Pork	1,325,346 "	1,517,630 "
Lamb and mutton	323,641 "	418,852 "
Miscellaneous meats	1,274,689 "	1,104,761 "
Total poultry	4,905,358 "	7,473,093 "
Butter	3,860,824 "	3,387,601 "
Eggs (case)	1,599,510 doz.	1,770,420 doz.
Eggs (frozen)	2,121,930 "	1,844,795 "
Haddock fillets	2,772,618 lbs.	1,839,034 lbs.
Cod, haddock, pollack, hake	5,106,938 "	9,165,079 "
Mackerel	6,505,709 "	4,126,152 "
Whiting	4,020,758 "	11,766,199 "
Squid	1,335,128 "	750,270 "
Herring	962,015 "	1,122,257 "
Herring (cured)	1,176,468 "	1,108,235 "
Halibut	248,770 "	244,872 "
Other miscellaneous	4,655,484 "	8,319,663 "

Meat. — Meat consumption constitutes the most important part of food expenditure in Massachusetts, being allowed nearly one third of the total allowance for food. While the index for combined meats varied during the year from 140.2, the high point in February, to 123.5 the low point in January, it is noted that the index of 137.2 in December was below that of 144.2 in December, 1935, showing a decrease during the year.

It has been estimated that nearly one billion more dollars per day was paid to producers by packers in 1936 than during 1935, improved demand and a substantially increased supply making this possible. Per capita consumption increased from 129 pounds in 1935 to 137 pounds in 1936, undoubtedly due to lower prices and higher family incomes.

The production of beef, veal, lamb, and pork in the United States is estimated at 17 billion pounds or an increase of $2\frac{1}{2}$ billion pounds over the 1935 figure. Restoration of livestock production to normal proportions was delayed by the 1936 drought which reduced feed supplies and caused farmers to curtail production of hogs and other meat animals. Prediction of the United States Department of Agriculture is for smaller meat supplies for 1937, due to the shortage of feed. November estimates for corn and oats compared with the 1935 production are given below:

	<i>Production of 1935</i>	<i>Estimate for 1936</i>
Corn	2,291,629,000 bu.	1,526,627,000 bu.
Oats	1,196,668,000 bu.	783,750,000 bu.

A more detailed report on meat and meat production was contained in the 1935 report of this division.

Prices of potatoes and dried beans were the individual commodities showing the greatest price increases during 1936, due to forecasts of short crops in both these important items of food, the potato crop estimate being about 55 million bushels less than the 1935 production.

Clothing. — The clothing index has been slightly lower during 1936 than for the previous year, due to slightly lower prices in many items of wearing apparel. This section of the budget is allotted 12.8% of total family expenditures, divided about equally between the men's and women's budget, the decreases noted being indicated in both of these groups.

Due to climatic conditions, a larger portion of the family income must be expended for clothing in Massachusetts than in most other sections of the country. Larger quantities and greater varieties are required for protection against the cold and changeable climate of New England.

Standardization of the clothing section of the budget is almost impossible, due to the ever changing styles and various methods of tailoring, same or similar fabrics being used in garments, the selling prices of which may differ widely, depending upon the make-up of the item. For this reason, the clothing index, with the exception of certain staple commodities, is based on the sampling method, or the prices of goods entering into the manufacture of the garments.

Massachusetts textile and shoe industries should be able to supply clothing to its people at most reasonable prices or, at least, obtain sufficient returns to its workers to purchase all goods at prices comparable to other communities. Low labor wages and different living conditions in competing textile centers have been a serious handicap in this respect during recent years. It is to be hoped, however, that this handicap will be eliminated in the near future and return prosperity to our manufacturing cities.

Clothing may be purchased at a wide variation in prices and a purchaser who is able and willing to shop before making selections is usually the beneficiary of lower prices.

Fuel and Light. — One of the duties of the division, under the law by which it was created, is the study and investigation of the circumstances affecting fuel prices and, in this connection, a large amount of data is collected and compiled relative to the fuel situation.

Detailed information regarding types and amounts of various fuels consumed, receipts, stocks, transportation, and prices are in wide demand by the trade, including producers, transportation agencies, wholesalers and retailers of fuel, and all allied business organizations. Requests are also received for fuel data in various forms to be used by governmental officials and others in connection with rate cases and other forms of official hearings.

In Massachusetts, the item of fuel is an important factor, as some amount of heat is necessary during more than half of the year, due to the extremes in climatic conditions. High fuel prices, therefore, affect all of our citizens, and because of continued high prices charged for anthracite, substitute fuels have displaced a large amount of this fuel, which formerly supplied practically the entire New England demand for heating purposes.

Average retail prices of anthracite were slightly lower during the greater part of the consuming year than for 1935, although summer prices were slightly higher than for the corresponding period of last year.

Domestic anthracite deliveries in the first six months of the 1936-1937 coal year amounted to 1,046,000 net tons, compared to 746,000 net tons in the first four months of the 1935-1936 coal year, and 1,536,000 net tons for the eight months period, April 1 to December 1, of the 1935-1936 year.

The use of oil for domestic heating continued to increase with this popular fuel largely displacing the loss of anthracite tonnage. Lower prices charged and easy terms of payment for equipment, cleanliness and ability to regulate use when not needed have appealed to the home owner in ever increasing numbers. The large number of dealers and pedlers now handling oil, in addition to the major companies and coal dealers, makes it possible to purchase this fuel in any quantity desired, and is most convenient for those having depressed incomes or small storage space for fuel. A summary of all fuels used for home consumption is contained in the appendix of this report.

Electricity and gas, which are Public Utilities controlled services in Massachusetts, showed little change during the year, although several applications for reduction in rates have been before that board for action.

Fuel statistics indicating production, receipts, deliveries, stocks, and prices of fuel are contained in the fuel appendix.

Shelter. — The shelter index which represents 21.8% of the total budget increased during the year from 142.0 in December, 1935, to 150.0 in December, 1936, due to increased demand and ability to collect higher rentals on available property. Mortgage money for construction is apparently more plentiful, and what may turn out to be the first real building boom in many years started during the latter part of the year. Assistance offered by the federal government through the Federal Housing Administration has prompted the building and purchasing of houses by many families to whom the terms of mortgage payments have appealed. Under the Federal Housing Administration plan, the mortgage is guaranteed up to 80% of the value of the house and property, and provides for amortization of the mortgage loan over a maximum of twenty years, with interest, taxes, mortgage insurance, and other charges amortizing about 6% annually.

Many local banks have adopted a similar program of financing, not backed by the federal government, by which the loan is to be amortized in a 20-year period, with monthly payments including the proportionate part of the taxes for the current year, other charges to be borne by the owner. This twenty-year payment plan materially reduces monthly payments, which the buyer is obliged to meet, and has resulted in a greater number of families, especially in the medium income group, building or purchasing their own homes.

Federal construction of housing facilities with federal money, under supervision of the housing division of the Federal Emergency Division of Public Works, has also tended to stimulate private construction, having demonstrated the need for a greater number of new dwellings during the next few years. Two of these federal projects are now well on the way to completion in Massachusetts, one located in South Boston and the other one in Cambridge. When completed, which will undoubtedly be before the end of 1937, these two units will house more than 1,300 families. Under present plans, the occupants of these units will receive shelter, heat, light, refrigeration, and janitor service for their rentals.

With the return to higher family incomes, which is already being noted on a small scale, more and more families will be seeking living quarters, as many groups have been living in cramped conditions in inadequate space.

A tenants' market at a time when building has been practically at a stand-still for a number of years may create a serious situation for those whose incomes have not been increased, as higher rental demands will follow in the wake of any shortage of living quarters. It has been noted by representatives of the division that comparatively few vacancies exist in desirable types of property and that all new property is rented or sold practically as soon as completed. Such a condition should stimulate building and release bank money for financing new projects. Federal governmental agencies are predicting a protracted housing shortage with a resultant building boom and high real estate values with a return of prosperity to real estate owners and the building materials industry.

The division is of the opinion that building on a large scale should be started now in order to prevent a recurrence of the conditions which existed for several years after the war. During that period, rental charges continually increased and speculation in real estate was the order of the day, some property changing hands many times within a short period of time, in many instances merely to increase the valuation of such property for the purpose of demanding additional rental.

During the year the division has continued to receive a large number of requests for information from both landlords and tenants, and by treating each case individually has been able to iron out most of the disputes and misunderstandings in cases called to its attention. Due to the large number of requests for information relative to the statutes governing the rental of property, the sections of the General Laws most applicable to the average tenant are printed herewith:

Chapter 186 of the General Laws

SECTION 11. Upon the neglect or refusal to pay the rent due under a written lease, fourteen days' notice to quit, given in writing by the landlord to the tenant, shall be sufficient to determine the lease, unless the tenant, at least four days before the return day of the writ, in an action by the landlord to recover possession of the premises, pays or tenders to the landlord or to his attorney all rent then due, with interest and costs of suit.

SECTION 12. Estates at will may be determined by either party by three months' notice in writing for that purpose given to the other party; and if the rent reserved is payable at periods of less than three months, the time of such notice shall be sufficient if it is equal to the interval between the days of payment; and in case of neglect or refusal to pay the rent due from a tenant at will, fourteen days' notice to quit, given in writing by the landlord to the tenant, shall be sufficient to determine the tenancy.

SECTION 13. Whenever a tenancy at will of premises occupied for dwelling purposes, other than a room or rooms in a hotel, lodging house or rooming house is terminated, without fault of the tenant, either by operation of law or by act of the landlord except as provided in section twelve, no action to recover possession of the premises shall be brought, nor shall the tenant be

dispossessed, until after the expiration of a period, equal to the interval between the days on which the rent reserved is payable, from the time when the tenant receives notice in writing of such termination; but such tenant shall be liable to pay rent for such time during the said period as he occupies or detains the premises, at the same rate as theretofore payable by him while a tenant at will.

SECTION 14. Any lessor of any building or part thereof occupied for dwelling purposes, other than a room or rooms in a hotel, lodging house or rooming house, who is required by the terms, expressed or implied, of any contract or lease, to furnish water, heat, light, power, elevator service or telephone service to any occupant of such building, or part thereof, who wilfully or intentionally fails to furnish such water, heat, light, power, elevator service or telephone service at any time when the same is necessary to the proper or customary use of such building, or part thereof, or any lessor who wilfully and intentionally interferes with the quiet enjoyment of any such leased premises by the occupant, shall be punished by a fine of not more than one hundred dollars, or by imprisonment for not more than six months.

Chapter 239 of the General Laws

SECTION 9. In an action of summary process to recover possession of premises occupied for dwelling purposes, other than a room or rooms in a hotel, lodging house or rooming house, where a tenancy has been terminated without fault of the tenant, either by operation of law or by act of the landlord, except by a notice to quit for non-payment of rent as provided in section twelve of chapter one hundred and eighty-six, a discretionary stay of judgment and execution may be granted, as hereinafter provided, upon application of the tenant, for such period not exceeding one month, as the court may deem just and reasonable.

SECTION 10. Upon application for such a stay of proceedings, the court shall hear the parties, and if upon the hearing it appears that the premises of which possession is sought to be recovered are used for dwelling purposes; that the applicant cannot secure suitable premises for himself and his family elsewhere within the city or town in a neighborhood similar to that in which the premises occupied by him are situated; that he has used due and reasonable effort to secure such other premises; that his application is made in good faith and that he will abide by and comply with such terms and provisions as the court may prescribe; or that by reason of other facts such action will be warranted, the court may grant a stay as provided in the preceding section, on condition that the terms upon which such stay is granted be complied with.

SECTION 11. Such stay shall be granted and continue effective only upon the condition that the applicant shall make a deposit in court of the entire amount, or such instalments thereof from time to time, as the court may direct, for the occupation of the premises for the period of the stay, at the rate to which he was liable as rent for the month immediately prior to the expiration of his term or tenancy plus such additional amount, if any, as the court may determine to be reasonable. The deposit shall also include all rent unpaid prior to the period of the stay. The amount of the deposit shall be determined by the court at the hearing upon the application for the stay, and such determination shall be final and conclusive in respect only to the amount of the deposit, and the amount thereof shall be paid into court, in such manner and in such instalments, if any, as the court may direct. A separate account shall be kept of the amount to the credit of each proceeding, and all such payments shall be deposited by the clerk of the court, and paid over to the landlord or his duly authorized agent, in accordance with the terms of the stay or the further order of the court.

SECTION 12. Any provision of a lease whereby a lessee or tenant waives the benefits of any provision of sections nine to thirteen, inclusive, shall be deemed to be against public policy and void.

SECTION 13. Costs recoverable under section three shall in actions to which sections nine to eleven, inclusive, apply, include only legal costs covering actual disbursements and shall not include fictitious costs, so-called.

Much of this legislation was drafted as emergency legislation in the period of housing shortage after the war, and has since been permanently added to the statutes.

Sundries

The sundries section of the budget contains an assortment of goods and services which cannot be included in other sections grouped together and given a weighting of 22.8% of total expenditures. This list includes such items as ice; carfare; entertainment; medicine; insurance; church; tobacco; reading matter; house furnishings; organizations; candy; soft drinks; etc. During the year the index for this group dropped from 152.7 in December, 1935, to 151.8 in December, 1936.

The budget of the division makes no provision for savings other than the item of insurance. This protection against sickness and death is carried in some form by most families, although it has been necessary during the depression period for many families to decrease or even eliminate this type of protection.

People do not eat more food, wear more clothing or burn additional fuel merely because of higher income, although a better variety of food and clothing may be purchased and a more desirable type of fuel be available. The division contends that standards of living depend upon the amount of income available for the sundries section, and that therefore increased income raises standards under which the family lives, as more money is available for luxuries, semi-luxuries, educational advancement, entertainment and savings. The average American citizen desires the better living conditions supplied by a high living standard and strives to obtain and retain that standard once it has been reached, even though it means a sacrifice, in many instances, in other budget allowances.

The problems of many families who, during the period of high income, overbought or were over-sold through easy credit conditions and partial payment plans continued as one of the many activities of the division to receive personal attention. Dealers and creditors for the most part co-operated to the fullest extent in the settlement of these cases in a manner which caused the least hardship to the family concerned. In many cases it was found that creditors were not in accord with the hard-boiled, high pressure tactics employed by many of their collectors.

EMERGENCY FOOD AND FUEL ADMINISTRATION

On March 21, 1936, His Excellency, James M. Curley, Governor, by the following communication designated the Director as Emergency Food and Fuel Administrator:

THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE DEPARTMENT STATE HOUSE BOSTON

James M. Curley
Governor

March 21, 1936.

Mr. Ralph W. Robart,
Director of the Division on
the Necessaries of Life,
State House, Boston, Mass.
Dear Sir:

I herein, subject to the approval of the Executive Council and in accordance with the provisions of Statute 1933, chapter 362, designate you Emergency Food and Fuel Administrator for and during the pendency of an emergency now existent in reference to both food and fuel in numerous areas of the commonwealth, occasioned by the flooding of some of our rivers.

The within designation shall remain in full force and effect until revoked by me in writing.

Sincerely,
(signed) James M. Curley.

This action was confirmed by the Executive Council on March 21, as indicated by the following communication:

THE COMMONWEALTH OF MASSACHUSETTS
COUNCIL CHAMBER
STATE HOUSE BOSTON

Mr. Ralph W. Robart, Director,
Division on the Necessaries of Life,
State House, Boston, Mass.

Dear Sir:

At a meeting of His Excellency, the Governor, and Council, held Saturday, March 21, 1936, His Excellency submitted to the Council the following communication:

"THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE DEPARTMENT
STATE HOUSE BOSTON

March 21, 1936.

To the Executive Council:

Gentlemen:

Pursuant to the provisions of statute 1933, chapter 362, and every other authority me enabling, I, James M. Curley, Governor of the Commonwealth of Massachusetts, herein determine and declare that an emergency exists in respect to both food and fuel in numerous areas of the commonwealth, occasioned by the flooding of some of our rivers, and I request your approval of the written designation heretofore today made by me of the Director of the Division on the Necessaries of Life to act as Emergency Food and Fuel Administrator for and during the pendency of the aforesaid emergency or until the aforesaid designation is by me revoked in writing.

Respectfully,
(signed) James M. Curley."

Pursuant to the provisions of statute 1933, chapter 362, it was voted unanimously that the Council approve the action of His Excellency the Governor as set forth in the above communication.

Yours respectfully,
(signed) WILLIAM L. REED,
Executive Secretary.

The first act of your Administrator was to proceed with the establishment of a working organization in the flood area, supplemented by an advisory board, representing all branches of industry and business, who could advise with the Administrator at the Boston office. Therefore, the following telegram was dispatched to authorities in every city and town affected, and within forty-eight hours a complete Emergency Food and Fuel Administration was established:

Boston, Mass., March 21, 1936.

Due to flood conditions in certain sections of the commonwealth His Excellency Governor Curley has declared an emergency to exist with reference to food and fuel and has designated me in accordance with law as emergency food and fuel administrator/acting under this authority it is requested that you either act as local emergency food and fuel administrator for your community or designate someone to act in this capacity during this emergency in order that the welfare of your people may be safeguarded/all attempts to unduly increase food and fuel prices and any shortage of food or fuel in your community should be reported to this office at once in order that proper action may be taken to properly correct these conditions/your attention is also called to sections nineteen and twenty of chapter forty of the General Laws which authorizes you to take prompt action for providing necessities of life to the inhabitants of your community/to prevent any misunderstanding or misrepresentation of facts I shall depend upon you or the person designated by you for all authoritative information regarding your community/in the event

that you do designate someone else kindly furnish this office with the name, address, and telephone number of the person appointed this office may be reached by calling Capital 4600.

RALPH W. ROBERT,
Emergency Food and Fuel Administrator,
Commonwealth of Massachusetts.

The make-up of the Emergency Food and Fuel Administration follows:

RALPH W. ROBERT, *Food and Fuel Administrator*

DEPUTY FOOD AND FUEL ADMINISTRATORS AT LARGE

John H. Pembroke

Frank T. Pedonti

Wallace H. Rutherford

John H. Prouty

Advisory Board

General Chairman, James T. Moriarty, *Commissioner of Labor and Industries*

Charles P. Howard, *Chairman, Commission on Administration and Finance*

Dr. Henry D. Chadwick, *Commissioner of Public Health*

Walter McCarthy, *Commissioner of Public Welfare*

Howard H. Murphy, *Commissioner of Agriculture*

John H. Walsh, *Department Commander, American Legion*

Martin W. Powers, Esquire, *Legal Advisor*

Meat

Henry T. Reynolds, Swift & Company

George L. Horton, Wilson & Company

Daniel E. Ford, Cuddahy Packing

Food

Frank H. Foy, National Association of Retail Grocers

Charles F. Adams, First National Stores

J. J. Byrnes, A & P Stores

Winthrop C. Adams, New England Food Distributors

Fish

George E. Willey, Lincoln-Willey & Company

Edward H. Cooley, Mass. Fisheries Assn. Inc.

Fruit and Produce

David Fitz, Boston Market Terminal Co.

Milk

Howard Parker, Independent Milk Dealers Assn. (Stuart Milk)

Howard W. Selby, United Farmers

Weston B. Haskell, H. P. Hood Milk Company

Restaurants

Andrew J. Crotty

Coal and Coke

Richard M. Folsom, New England Coke Company

William A. Clark, New England Coal Dealers Assn.

Furniture and Furnishings

E. A. Brest, Morgan's Furniture Company

Real Estate

Rodney W. Long, Massachusetts Real Estate Exchange

Retail Trade

Daniel Bloomfield, Boston Chamber of Commerce

FOOD AND FUEL ADMINISTRATORS

Cities

Chicopee: Thaddeus M. Szetela, 73 Exchange Street
 Fitchburg: Robert E. Greenwood, Mayor
 Gardner: Samuel S. Lord, Chamber of Commerce
 Haverhill: Marshall G. Nichols
 Lawrence: Walter Griffin, Mayor
 Lowell: Richard B. Walsh
 North Adams: J. E. Fitzgerald
 Northampton: Charles L. Dunn, Mayor
 Pittsfield: Charles H. Hodecker, Federal Street
 Springfield: Philip E. Erard, City Hall
 Westfield: James E. Allen, 19 Pleasant Street
 Worcester: Chris. Scaife

Towns

Agawam: J. Gilman Clark, 272 Maple Street and 2 Wilder Terrace
 Andover: Roy E. Hardy
 Amherst: F. C. Pray, Chairman, Board of Selectmen
 Athol: Albert N. Ellis, 124 Bridge Street
 Cheshire: Thomas J. Delaney, Fisk Street
 Dalton: D. Herbert Pike, 203 North Street
 Deerfield: George Fuller
 Dracut: Joseph Harman
 Erving: Patrick T. Lunney, 4 Pratt Street
 Great Barrington: Edward R. Williams, 84 Grove Street
 Hadley: Edmund Smith
 Hinsdale: Edgar P. Thomas, Ashmere Road
 Hubbardston: Harley E. Edwards, Morgan Road
 Leominster: Harold W. Burdett, 28 Grove Avenue
 Longmeadow: Benjamin L. Bragg, 15 South Park Avenue
 Methuen: Thomas Gunter, 11 Hudson Street
 Montague: Francis Dolan, Maple Street
 North Andover: James P. Hainsworth
 Northfield: Fred Holton
 Orange: Michael H. Roche, 24 Church Street
 Palmer: Henry W. Holbrook, Longview Street
 Phillipston: Thomas J. Harrington, Ward Hill Road
 Templeton: Emil Hendrickson, Gardner Road
 Tewksbury: Irving F. French, R. F. D. No. 1
 South Hadley: Quincy A. Bagg, Board of Selectmen
 Ware: John P. Casey, 42 Park Street
 Warren: Mr. T. S. Culliton, Chairman, Board of Selectmen
 West Springfield: Gerald Dahill, Westfield Street
 Williamstown: J. Franklin Carter
 Winchendon: Herbert S. Parke, 56 Highland Street

Deputy Food and Fuel Administrators

Dahill, Gerald B., 2 Wilder Terrace, West Springfield
 Daley, Daniel E., 16 Pierce Street, Feeding Hills
 Donohue, Robert J., 16 California Court, Clinton
 Egan, F. J., North Holden Street, North Adams
 Lawrence, E. D., 10 Olmstead Drive, Springfield
 Goff, Andrew, 9 Barberry Road, Worcester
 Hassett, J. D., 13 Blithewood Avenue, Worcester
 Murphy, William, 27 Orme Street, Worcester
 Powers, W. E., 66 Chatham Street, Worcester
 Vaughan, A. J., 47 Holden Street, Worcester
 Haggerty, J. J., 246 Rogers Street, Lowell
 Kelly, T. F., 956 Bridge Street, Lowell
 MacIver, J. D., 58 Oak Street, Lowell
 Meehan, Edward J., 58 Chauncey Street, Lowell
 Barton, Clarence L., 476 Main Street, Room 496, Worcester

This appointment placed extraordinary powers in the hands of your Director and in view of the tremendous damage done by the floods, it was anticipated that unusual expenditures would have to be made to bring about rehabilitation of the families and property in the stricken area. I, as Administrator, therefore, requested Martin W. Powers, Esquire, 44 School Street, Boston, who had volunteered to serve as legal advisor without compensation or expenses, for an opinion as to the latitude of my authority in the expenditure of state funds and his opinion is inserted herewith:

March 24, 1936.

Ralph W. Robart, Emergency Food
and Fuel Administrator,
Room 200, State House,
Boston, Massachusetts.
Dear Sir:

I have studied carefully Article XLVII of the Constitution of Massachusetts, chapter 40 of the General Laws of Massachusetts, particularly sections 19 and 20 of that chapter; chapter 342 of the General Laws, section 1 through section 29; and section 9 (h) of chapter 23 of the General Laws, and I find nothing therein enabling you as Emergency Administrator to erect bridges in order to further the flow of food and clothing supplies into areas devastated by the recent floods.

In rendering this opinion I have no doubt that section 9 (h) of chapter 23 of the General Laws of Massachusetts reenacts for your benefit the powers and authority granted by the Commonwealth Defense Act of 1917; this being chapter 342 of the General Acts of 1917. But in that Act there is not in my opinion any power for the Emergency Administrator to use funds of the Commonwealth for the construction of bridges.

I find in section 6 of chapter 342 the following:

"Whenever the governor shall believe it necessary or expedient for the purpose of better securing the public safety, or the defense or welfare of the commonwealth, he may with the approval of the council take possession: (a) of any land or buildings, machinery or equipment. (b) of any horses, vehicles, motor vehicles, aeroplanes, ships, boats, or any other means or conveyance, rolling stock of steam or electric railroads or of street railways. (c) of any cattle, poultry and any provisions for man or beast, and any fuel, gasoline or other means of propulsion which may be necessary or convenient for the use of the military or naval forces of the commonwealth or of the United States, or for the better protection or welfare of the commonwealth or its inhabitants. He may use and employ all property so taken possession of for the service of the commonwealth or of the United States, for such times and in such manner as he may deem for the interests of the commonwealth or its inhabitants,"

According to this section you have wide powers to use properties of various kinds, but you have been given no right to create properties. In other words, you can seize ships, boats, railways, or any other means of transportation for the purpose of conveying stores to the people in the stricken areas, because the use of these things provides a speedy way to relieve the necessities of the citizens of this commonwealth, but you have no right, as I see it and as I give as my opinion, to erect any structures which will take time in the erecting, and which would seem to defeat the purpose of chapter 342.

Very truly yours,
(signed) Martin W. Powers.

James T. Moriarty, Commissioner of Labor and Industries, served as Chairman of the Advisory Board, and immediately offered the services of all of the inspectors of this department at no additional expense to the commonwealth, which I accepted and appointed them deputy food and fuel administrators. This group was of tremendous assistance to the administration during the peak of rehabilitation days. To establish a definite authority in each community affected, I appointed one person in each community as local emergency food and fuel administrator.

Day and night service was established at the state house to receive messages and act upon the complaints and this twenty-four hour service was continued for thirty days. In all of our activities during this emergency period, we co-ordinated with the National Guard, who were on active duty most of the time; the State Police; and the American Red Cross. The State Police performed a most efficient service in first reaching and informing the Administrator the names and telephone numbers of local administrators, and then, through means of the teletype, to expedite messages to them during the emergency period.

Our purpose of Red Cross co-ordination was to expedite rehabilitation of families affected through the elimination of any possible red tape. We are happy to report the most cordial co-operation with the officials of the American Red Cross, and for a permanent record we carry the administrative set-up of relief personnel of this organization:

Springfield Headquarters

Harold B. Nearman, Director American Red Cross Flood Relief
1200 Main Street, Springfield, Mass.

Chicopee Area

Miss Ruth Kernodle, Director American Red Cross, Chicopee

Holyoke Area

Mrs. Aino Rissanen, Director American Red Cross, Holyoke

Hampshire County

Miss Katherine E. Salkeld, Director American Red Cross, Northampton

Franklin County

Col. J. J. Staley, Director, American Red Cross, Greenfield

Lowell Headquarters

Paul L. Hutchins, Director, American Red Cross Flood Relief
Old Lowell National Bank Building, Lowell, Mass.

Lawrence Area

M. K. Reckord, Director American Red Cross, Lawrence

Haverhill Area

Thomas M. Dinsmore, Director American Red Cross, Haverhill

The primary purpose of having the emergency authority invoked was to prevent exploitation or profiteering or any element of commercialism resulting from distress due to the flood. Rather than promulgate regulations of a price-fixing nature or otherwise, it was determined to approach the problem on the basis of patriotism. Therefore, your Administrator appealed to business by radio and through the press for all landlords of vacant apartments in the flood area to accept tenants at the existing rentals; to all business firms to sell their commodities at the same prices they were receiving prior to the flood and while reports indicate that in other states affected, there was tremendous profiteering and exploitation, we are happy to report that not one case existed in Massachusetts.

Although emergency authority continued throughout the remainder of 1936, the real activity terminated July 1. I cannot help but feel proud of the people of Massachusetts for their generous response to the Red Cross appeal and the willingness of business to co-operate during the time of emergency.

Although under emergency authority, practically no limit was set to the amount of money that could have been expended by the Emergency Food and Fuel Administration, the following is the report on the expenditures during this period:

EMERGENCY FOOD AND FUEL ADMINISTRATION
Flood Relief Expenses — 1936

General Services	\$126.00
Office Supplies	227.08
Travel	528.34
Total	<u>\$881.42</u>

RALPH W. ROBERT,
Emergency Food and Fuel Administrator.

APPENDIX I

COST OF LIVING CURVE

Statistical Method and Tables of Proportion and Prices

The division and its predecessor the Special Commission on the Necessaries of Life have used in the computation of the Massachusetts cost of living index the same percentages for the major sections of the budget as those used by the National Industrial Conference Board, until July of 1931. These weights, together with others which applied to many individual items of the budget, were changed in 1931 after much study and investigation, and the division believes that the new allocation of weights represents the relative importance of items and groups to a greater degree of accuracy.

The present allocation of weights for the major budget sections are as follows:

Food	37.6
Clothing	12.8
Shelter	21.8
Fuel and Light	5.0
Sundries	22.8

In computing an index of living costs, a list of representative articles in common use is first selected, and it is then necessary to assign importance to them in the total, in proportion to the extent to which they are commonly used. Food represents a much larger expenditure than ice or fuel; and in the list of foods a 20 per cent increase in the price of meats is much more important than a hundred per cent increase in the price of pepper or salt. The proportions assigned to the various commodities are called weights or weightings, and an index so constructed as to recognize the relative importance of different articles is called a "weighted index." The list of articles and weightings adopted by the division are given in detail in Tables 1 to 5, inclusive.

Having selected the list of commodities, some particular time must be chosen as a basis of comparison, and all prices at that time are called base prices, represented by 100 per cent in the scale. For the Massachusetts index, the calendar year 1913 was selected as a base year because this gave a true pre-war picture, and because this is the base used in the widely quoted index of the U. S. Bureau of Labor Statistics. Monthly quotations have been secured before and after the basic period, and each quotation is divided by the basic quotation to give the index number for the later month. Monthly quotations since 1910 have been used in the case of foods. Thus the basic, or 1913, quotation on flour was 91 cents per one-eighth barrel bag, and in November, 1934, the price was \$1.29, which, divided by the base, gave the index number for flour as 141.8 in November, 1934. Each quotation is in turn divided by the base price, and a table of index numbers, or percentages, is the result. A table is made for each commodity, and then the index numbers are combined using the weightings to which reference has been made. A different selection of commodities and a different selection of weightings will cause the indices to be quite different. Each is a true presentation of certain facts; no index can present all of the facts. In its studies the division has endeavored to choose not only the most necessary commodities, but also to combine them in proper proportions, so that a fair presentation is made of conditions in Massachusetts.

Some idea of the magnitude of work involved in making an index may be had when it is realized that over 400,000 computations were made in constructing the original index of living costs.

FOOD INDEX

The index of foods, which has a weighting of 37.6 in the total, is a composite based upon the selling prices of thirty-seven articles of food. These articles of food are assigned weights in accordance with their relative importance. The allocation of these weights follow:

Table 1. — Allocation of Commodity Weights in the Food Index

Fresh beef	1,605	Tea	187
Salt beef	242	Coffee	287
Fresh hog products	379	Sugar	518
Salt hog products	361	Molasses	45
Other meat	363	Flour and meal	480
Poultry	301	Bread	526
Fish	298	Rice	57
Eggs	570	Potatoes	457
Milk	788	Other vegetables	476
Butter	881	Fruit	253
Cheese	75	Vinegar, pickles and condiments	80
Lard	241	Other food	530
Total			10,000

Table 2. — List of Commodities in Combinations Included in the Food Index

Fresh beef: Steak, sirloin steak, and rump steak. Roasts and stews: Chuck roast, round beef. (The above cuts are given equal weight in the item of fresh beef.)

Salt beef: Fancy brisket.

Fresh hog products: Fresh pork loins.

Salt hog products: Ham, bacon, salt pork. (The above cuts are given equal weight in the item of salt hog products.)

Other meat: Lamb. Veal. (Lamb is given a weighting of 2 and veal 1 in the item of other meat.)

Poultry: Fowl.

Fish: Salt cod. Fresh haddock. (The above are given equal weight in the item of fish.)

Flour and meal: Wheat flour. Corn meal. (Flour is given a weighting of 3 and corn meal 1 in the item of flour and meal.)

Other vegetables: Onions. Canned tomatoes. Canned peas. Canned corn. (The above are given equal weights in the item of other vegetables.)

Fruit: Evaporated apples. Prunes. (The above are given equal weights in the item of fruit.)

Other food: Dried beans. Oatmeal. (Dried beans are given a weighting of 2 and oatmeal 1 in the item of other food.)

SHELTER INDEX

The index of shelter, which has a weighting of 21.8, is based on rentals charged for many houses in many parts of the Commonwealth. These ranged in 1910 from \$12 to \$32 per month, and in November, 1934, from \$20 to \$50 per month. The list includes single, two-family, and three-family houses, and middle-priced apartments, heated and unheated, but does not include mercantile or office buildings.

CLOTHING INDEX

The index of clothing, which has a weighting of 12.8 in the total budget, is derived from quotations on the following articles. The weighting of the various articles of clothing, as combined in the clothing index, is also shown.

The standard blue serge has been used as the basis for quotations for men's outer garments. Overcoats have varied in weight and style, and it has been almost impossible to find a standard for quotation. Overcoating fabric prices of uniform weight have, however, advanced in the same ratio as blue serge prices and, therefore, the index of the serge suit cost, which is almost identical with the index serge fabric costs, has been used as a basis for the suit, overcoat and trousers item. For night garments the composite of cotton fabrics has been used, as all cheaper cotton fabrics have advanced in nearly the same ratio, and the quotation will therefore cover night garments made of either canton or domet flannels or long cloth. In

the list of women's clothes the same index based upon blue serge has been used for the topcoat, suit and street dress. The items of night gowns, slips, kimonos, waists, house dresses and aprons are combined, and the average index of cotton piece goods has been used.

Table 3. — Allocation of Weightings in the Clothing Index

Men's

Overcoats, suits, trousers	48	Shirts	7
Shoes	9	Collars	1
Hats	6	Underwear	3
Gloves	2	Night garments	3
Socks	5		—
Total			84

Women's

Suits, topcoats, street dresses	42	Gloves	2
Underwear	4	Hosiery	7
Waists, kimono, house dresses, aprons, nightgowns, slips	10	Corsets	2
Shoes	8	Hats	5
Total			80

FUEL, HEAT AND LIGHT INDEX

The index for fuel, heat and light, which has a weighting of 5.0, is based upon selling prices of coal and kerosene throughout the State, and upon the rates for gas and electricity in the following cities: Boston, Springfield, Worcester, Lawrence, Lowell, New Bedford and Fall River.

The weightings assigned to these different commodities are based upon a study of family expenditures, and are gauged to cover conditions in wage-earning families throughout the State. The weightings are as follows:

Table 4. — Allocation of Weightings in the Fuel Index

Coal	61	Gas	20
Kerosene	4	Electricity	15
Total			100

SUNDRIES INDEX

For sundries, substantially the same list of commodities that is quoted in the report of the National Industrial Conference Board (Research Report No. 22) has been used with the addition of ice. The list, together with weightings assigned to the different commodities, is as follows:

Table 5. — Allocation of Weightings in the Sundries Index

Ice	847	Tobacco, etc.	589
Carfare	1,056	Reading	934
Entertainment	902	House furnishings	1,834
Medicine	1,015	Organizations	879
Insurance	1,111	Candies, soft drinks, etc.	322
Church	511		—
Total			10,000

It should be noted that no provision is made in the above classification for savings other than insurance.

Table 6 — Cost of Living Index Numbers by Elements

1919

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	180.1	174.2	174.1	176.6	179.7	181.0	182.2	187.4	182.0	184.7	188.9	189.1
Clothing	221.5	223.5	223.8	235.3	235.8	235.8	235.8	237.2	240.9	256.3	271.6	272.3
Shelter	118.4	118.4	118.4	115.5	115.5	115.5	115.5	115.5	115.5	129.6	129.6	129.6
Fuel and light	143.1	132.1	135.1	135.7	140.0	144.3	145.8	150.1	150.1	150.7	152.9	153.5
Sundries	155.0	155.0	155.0	156.0	158.0	160.0	163.0	165.0	167.0	172.0	175.0	175.0
Combined	167.5	164.7	164.7	167.0	169.1	170.3	171.5	174.6	173.1	179.9	184.5	184.7

1920

Food	200.9	195.5	198.9	198.2	207.9	207.9	210.9	205.1	202.5	194.7	187.2	179.6
Clothing	286.2	291.3	299.8	303.5	302.0	288.4	280.9	282.9	285.9	268.9	258.3	226.0
Shelter	131.0	131.0	131.0	133.8	134.9	139.4	139.4	142.4	147.8	147.8	150.6	151.7
Fuel and light	154.2	160.7	161.6	160.8	171.1	171.7	172.1	175.0	188.5	189.2	190.0	189.9
Sundries	175.9	175.9	175.9	183.0	183.0	185.0	185.0	185.0	188.0	190.0	192.0	192.0
Combined	192.0	190.8	193.4	196.3	200.3	199.7	202.6	198.5	200.1	194.9	191.3	183.9

1921

Food	171.5	158.6	145.1	142.1	135.3	133.5	130.5	142.0	139.9	138.7	137.2	139.4
Clothing	219.9	214.4	208.2	206.5	201.6	197.1	191.8	187.1	186.7	186.2	187.6	186.1
Shelter	151.7	151.7	153.2	156.3	159.4	159.4	159.4	156.4	161.0	161.0	161.0	161.0
Fuel and light	188.8	188.3	187.5	177.4	176.8	176.1	175.9	175.9	175.4	180.9	180.0	180.5
Sundries	192.0	190.0	190.0	188.0	188.0	185.0	183.0	183.0	180.0	180.0	180.0	178.0
Combined	179.5	172.9	166.4	164.5	161.4	159.4	160.8	161.4	160.0	159.7	159.2	159.6

1922

Food	136.1	135.6	133.1	135.4	134.0	134.1	137.2	136.3	138.2	139.9	139.8
Clothing	180.1	179.2	176.9	176.5	176.1	176.5	176.1	177.6	178.4	179.1	179.4
Shelter	162.5	162.5	162.5	162.5	162.5	162.5	162.0	162.0	162.0	162.5	162.5
Fuel and light	174.9	174.9	173.7	172.8	172.8	172.7	172.0	177.0	182.6	184.5	184.8
Sundries	178.0	177.0	177.0	174.0	174.0	174.0	174.0	172.0	169.7	169.7	168.8
Combined	157.3	156.8	155.3	155.6	154.9	155.0	156.2	155.4	156.6	157.7	157.5

1923

Food	139.3	141.3	133.8	139.3	141.0	140.0	143.4	142.0	144.9	142.0	144.1
Clothing	178.0	182.2	182.8	184.0	183.2	184.1	182.1	182.2	185.9	187.0	186.1
Shelter	162.5	162.5	164.5	166.0	166.5	167.0	167.0	167.0	167.5	167.5	167.5
Fuel and light	184.8	184.2	178.2	177.5	177.5	177.4	178.2	177.0	181.6	182.1	181.7
Sundries	168.8	168.8	168.8	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5
Combined	157.1	158.5	157.5	158.5	159.1	158.9	160.1	159.5	161.6	160.5	161.3

1924

Food	141.0	139.9	139.0	136.1	136.4	137.1	137.5	138.5	142.1	141.5	143.0
Clothing	186.8	187.4	186.0	184.9	183.3	181.6	181.4	178.8	180.1	178.4	181.2
Shelter	168.0	168.0	168.0	168.0	168.0	168.0	168.0	172.0	172.0	172.0	172.0
Fuel and light	178.4	178.6	178.8	177.1	177.0	177.2	177.5	177.4	179.6	179.5	179.5
Sundries	171.4	171.4	171.4	171.4	171.4	171.4	171.4	170.5	170.5	170.5	172.2
Combined	160.1	159.7	159.2	157.7	157.6	157.7	157.8	158.4	160.3	159.8	161.2

1925

Food	144.7	142.8	144.4	143.4	143.7	146.8	147.9	150.2	153.1	154.1	155.6
Clothing	177.9	177.6	181.6	181.2	180.8	182.3	182.1	180.7	181.1	182.1	186.6
Shelter	172.0	172.0	172.0	172.0	172.0	172.0	172.0	172.0	170.0	170.0	170.0
Fuel and light	179.9	180.0	179.6	178.7	176.7	176.6	178.5	181.2	181.2	186.4	197.4
Sundries	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2	171.4	171.4	172.2
Combined	161.5	160.6	161.6	161.1	161.2	162.8	163.4	164.4	163.9	165.9	168.0

Table 6 — Cost of Living Index Numbers by Elements — Continued

1926

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	151.8	153.9	149.2	151.9	148.0	148.3	147.7	145.4	146.8	147.3	147.4	147.9
Clothing	184.5	181.7	182.3	179.2	180.3	181.2	178.6	178.7	177.0	177.7	177.5	177.5
Shelter	170.0	170.0	170.0	170.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
Fuel and light	214.6	198.0	183.3	181.4	181.9	182.0	183.3	184.4	184.4	185.2	185.7	185.5
Sundries	172.2	172.2	172.2	172.2	170.5	170.5	169.7	169.7	169.7	170.5	171.4	171.4
Combined	167.0	166.6	163.9	164.5	162.3	162.5	161.9	160.9	161.3	161.8	162.1	162.3

1927

Food	145.9	143.7	142.1	143.4	145.7	145.5	142.8	142.2	142.6	142.1	144.6	145.0
Clothing	176.1	176.3	175.1	175.0	173.9	173.3	170.2	171.6	172.5	172.1	172.8	172.8
Shelter	168.0	168.0	166.0	166.0	166.0	166.0	166.0	165.0	165.0	165.0	165.0	165.0
Fuel and light	185.4	185.3	184.6	181.6	178.5	178.4	179.0	179.3	181.5	181.5	181.5	181.4
Sundries	171.4	171.4	171.4	170.5	170.5	170.5	170.5	170.5	169.7	169.7	170.5	170.5
Combined	161.2	160.3	159.0	159.2	159.9	159.7	158.6	158.0	158.2	158.0	159.3	159.5

1928

Food	145.4	144.2	142.2	144.6	146.1	144.6	148.6	149.3	152.7	150.0	149.0	147.6
Clothing	172.6	172.7	172.6	171.7	173.8	172.1	172.5	170.9	171.5	169.3	171.5	172.8
Shelter	165.0	165.0	165.0	165.0	165.0	165.0	165.0	163.0	163.0	163.0	163.0	163.0
Fuel and light	181.4	181.2	181.2	175.4	175.4	175.4	175.4	175.5	177.9	177.9	179.7	179.6
Sundries	170.5	169.7	169.7	168.8	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Combined	159.6	158.9	158.0	158.4	159.6	158.7	160.5	160.3	161.9	160.5	160.5	160.0

1929

Food	148.5	146.5	147.6	147.7	149.1	148.1	151.8	154.7	153.0	152.1	149.3	148.9
Clothing	.	170.1	174.1	173.6	173.6	173.6	172.2	173.6	173.2	173.5	173.6	174.0
Shelter	.	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
Fuel and light	.	179.5	179.6	179.7	177.9	174.2	176.4	176.3	178.9	179.0	179.1	179.3
Sundries	.	170.0	169.2	169.2	168.9	168.9	167.7	167.7	167.7	168.4	169.2	169.2
Combined	.	160.5	159.0	160.0	159.8	160.2	161.1	162.5	161.9	161.7	160.7	160.6

1930

Food	146.4	145.8	141.9	142.1	141.7	139.3	137.6	136.6	137.2	137.0	132.9	130.8
Clothing	.	173.6	173.6	173.3	173.1	173.0	172.4	172.7	171.6	168.8	165.5	164.0
Shelter	.	163.0	163.0	163.0	163.0	161.0	161.0	161.0	161.0	161.0	161.0	160.5
Fuel and light	.	179.4	179.4	178.3	178.1	170.7	172.1	174.3	175.0	175.8	175.4	175.3
Sundries	.	169.2	168.1	167.2	167.2	167.0	166.9	165.7	165.7	165.3	165.6	165.0
Combined	.	159.4	158.9	157.0	157.1	156.4	154.2	153.7	153.9	153.4	151.2	149.9

1931

Food	128.5	121.3	120.9	118.9	115.9	115.0	115.7	117.0	117.4	115.1	111.5	107.8
Clothing	.	162.4	157.4	156.6	154.5	151.0	149.2	148.6	148.4	148.0	145.8	145.0
Shelter	.	160.5	156.0	156.0	156.0	155.0	155.0	153.0	153.0	151.0	151.0	151.0
Fuel and light	.	175.5	175.4	175.8	166.0	163.1	164.9	165.5	167.5	168.3	168.7	168.1
Sundries	.	164.2	163.8	162.2	161.3	158.8	157.5	157.0	157.0	156.6	156.0	154.6
Combined	.	148.6	143.9	143.3	141.5	141.1	140.2	140.4	140.7	139.3	137.5	135.7

1932

Food	105.6	102.2	100.3	98.6	96.2	93.0	98.8	99.3	99.2	97.4	95.8	94.9
Clothing	.	138.8	135.9	132.2	132.2	128.8	125.4	123.9	122.0	123.9	120.4	121.7
Shelter	.	151.0	150.0	150.0	150.0	150.0	150.0	150.0	135.0	135.0	135.0	135.0
Fuel and light	.	168.0	164.0	164.0	155.8	154.2	154.9	154.9	158.9	159.0	157.3	156.8
Sundries	.	154.6	152.9	152.9	152.9	151.2	152.9	152.9	152.9	152.9	150.1	150.1
Combined	.	134.0	131.6	130.8	129.3	127.5	128.5	128.5	125.2	124.7	122.7	122.8

Table 6 — Cost of Living Index Numbers by Elements — Concluded

1933

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	91.6	87.9	86.5	86.6	89.7	92.1	100.0	102.1	103.8	104.2	103.2	101.6
Clothing	121.2	121.5	119.1	120.7	121.7	124.6	126.6	130.8	135.7	140.4	142.6	143.4
Shelter	135.0	135.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	135.0	135.0	135.0
Fuel and light	157.1	156.9	156.2	156.2	150.4	148.8	150.1	151.1	154.6	155.3	155.4	155.1
Sundries	148.8	148.8	148.8	148.8	148.8	148.0	149.0	149.4	150.4	151.1	151.1	151.1
Combined	121.2	119.8	118.5	118.9	119.7	121.0	124.3	125.7	127.4	128.8	128.7	128.2

1934

Food	100.2	103.9	105.4	105.2	106.7	107.0	110.1	112.1	114.1	113.8	112.6	110.9
Clothing	145.2	145.9	148.0	146.4	147.2	147.7	146.5	145.9	147.8	149.0	149.9	148.9
Shelter	138.0	138.0	138.0	138.0	138.0	138.0	138.0	138.0	138.0	139.0	139.0	139.0
Fuel and light	155.1	155.8	155.0	154.5	150.3	150.8	152.2	153.7	156.6	156.9	156.4	156.7
Sundries	152.2	152.2	152.2	152.2	153.9	153.9	153.9	153.6	153.6	153.6	153.6	153.5
Combined	128.8	130.3	131.1	130.8	131.6	131.9	132.9	133.6	135.0	135.0	134.7	133.9

1935

Food	116.0	120.9	122.7	124.2	123.6	121.6	121.8	124.5	126.3	124.2	125.3	123.9
Clothing	148.7	146.9	146.4	147.5	148.1	147.6	149.9	146.4	147.9	148.2	146.9	146.5
Shelter	139.0	139.0	139.0	139.0	139.0	139.0	139.0	142.0	142.0	142.0	142.0	142.0
Fuel and light	156.0	156.6	156.8	156.9	141.9	142.2	142.9	144.2	146.5	150.6	150.5	150.4
Sundries	153.5	153.5	153.3	153.3	153.3	153.3	153.3	153.3	153.3	153.3	153.3	152.7
Combined	135.8	137.4	138.0	138.0	137.8	137.0	137.4	138.7	139.7	139.1	139.3	138.6

1936

Food	120.0	120.6	119.1	118.2	120.4	120.6	122.3	120.9	121.4	119.3	120.6	122.3
Clothing	145.5	147.5	146.9	146.1	144.5	144.9	145.6	145.3	145.4	142.8	144.6	145.1
Shelter	142.0	142.0	142.0	142.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	150.0
Fuel and light	150.6	150.6	151.0	148.5	144.9	145.7	146.1	147.3	149.1	149.9	150.2	150.3
Sundries	152.7	152.7	152.7	152.7	152.7	152.7	152.7	152.7	152.2	152.2	152.2	151.8
Combined	137.0	137.5	136.9	136.3	137.4	137.6	138.4	137.8	138.0	136.9	137.7	139.4

APPENDIX II

FUEL STATISTICS

Table 1. — New England Anthracite Tidewater Receipts by States — Net Tons

	Maine	New Hampshire	Massachusetts	Rhode Island	Connecticut	Total
1929	236,454	16,637	1,227,447	328,590	450,372	2,259,500
1930	274,540	17,425	1,235,486	271,210	422,441	2,221,102
1931	164,271	18,295	1,124,778	282,389	347,743	1,937,476
1932	148,217	9,732	1,013,674	212,103	275,210	1,658,936
1933	195,414	7,066	1,027,337	202,195	258,452	1,690,464
1934	167,891	20,389	946,203	189,512	265,941	1,589,936
1935	121,265	7,325	802,387	204,720	238,546	1,374,243
1936	126,697	14,039	791,972	198,647	266,718	1,398,073

*Table 2. — * New England Anthracite Imports by States — Net Tons*

	Maine and New Hampshire	Vermont	Massachusetts	Rhode Island	Connecticut	Total
1929	46,493	43	321,977	115,468	—	483,981
1930	161,531	—	390,645	96,713	4,098	657,987
1931	61,823	—	412,524	122,595	13,703	610,645
1932	50,262	—	413,161	96,599	7,375	567,397
1933	18,864	—	336,829	67,512	7,392	430,597
1934	34,551	—	331,079	93,562	17,892	477,084
1935	36,947	—	397,508	105,039	18,630	558,724
1936	49,669	297	418,106	103,717	26,029	597,818

*Included in above receipts.

Source: Bureau of Foreign & Domestic Commerce, Washington, D. C.

Table 3. — New England Anthracite All-Rail Receipts by Roads — Net Tons

	N. Y., N. H. & Hartford	Boston & Maine	Boston & Albany	Central Vermont	Rutland	Total
1929	3,536,979	2,270,126	745,828	116,534	111,424	6,780,891
1930	3,302,715	1,990,504	660,106	110,868	104,988	6,169,181
1931	2,761,555	1,671,319	500,372	97,137	95,047	5,125,430
1932	2,170,685	1,293,753	353,056	78,796	83,497	3,979,787
1933	1,983,750	1,122,102	299,389	79,837	76,941	3,562,019
1934	2,407,555	1,415,482	372,645	101,600	85,152	4,382,434
1935	2,175,131	1,330,199	347,998	96,162	80,376	4,029,866
1936	2,542,113	1,363,988	691,466	296,444	184,133	5,078,144

Table 4. — Deliveries of Domestic-sized Anthracite and Average Retail Prices Per Net Ton for Certain Representative Municipalities of Massachusetts with Four or More Dealers

CITY OR TOWN	DELIVERIES*		AVERAGE RETAIL PRICES October 1, 1936	
	1935-1936 Coal Year	1936-1937 Apr. to Sept.	Stove	Pea
Boston District†	971,105	404,628	\$12.85	\$11.00
Adams	11,067	5,860	13.58	13.70
Brockton	29,348	7,665	13.88	13.00
Fall River	40,611	18,669	14.50	10.88
Fitchburg	19,309	7,306	13.00	11.88
Gloucester	25,981	7,803	13.75	11.75
Greenfield	19,257	4,981	13.63	11.90
Haverhill	31,824	13,168	12.50	11.25
Holyoke	37,743	12,066	13.63	11.88
Lawrence	49,205	22,753	14.00	12.25
Leominster	18,681	7,300	13.50	11.75
Lowell	50,887	20,192	14.00	12.12
Lynn	68,451	36,172	13.38	12.12
New Bedford	87,959	32,312	12.75	11.00
Newburyport	21,268	7,476	13.25	11.50
North Adams	19,463	9,713	13.65	12.40
Northampton	30,087	13,104	13.62	12.00
Norwood	11,363	4,074	13.60	11.80
Peabody	10,579	5,040	13.38	11.62
Pittsfield	65,178	29,550	13.25	11.25
Salem	42,140	18,577	13.50	12.00
Springfield	104,077	39,471	13.38	11.62
Taunton	24,631	12,725	13.90	12.25
Westfield	12,037	4,344	13.75	11.75
Woburn	7,644	3,703	12.50	11.30
Worcester	104,013	37,278	13.80	12.55
City of Boston	625,048	261,501	12.75	11.10
Cambridge	36,314	17,471	12.75	11.20
Chelsea	19,069	8,313	12.50	10.85
Malden	17,408	2,006	13.00	11.20
Medford	16,097	3,156	12.68	10.75
Melrose	—	4,809	13.00	11.20
Newton	35,778	3,793	13.00	11.10
Quincy	27,571	3,828	13.00	11.35
Revere	—	2,005	12.75	11.00
Somerville	56,321	2,538	12.75	11.10
Watertown	21,694	2,281	13.00	11.20

*Foreign Anthracite deliveries included.

†All of above included in Boston District figures together with Arlington, Belmont, Brookline, Everett, Milton, and Waltham.

*Table 5. — Deliveries of Domestic-sized Anthracite for Last Nine Coal Years —
The Commonwealth of Massachusetts*

(COAL YEAR, APRIL 1 TO MARCH 31)

	Net Tons
1927-1928	4,744,324
1928-1929	4,912,810
1929-1930	4,703,019
1930-1931	4,177,238
1931-1932	3,565,768
1932-1933	2,968,429
1933-1934	2,938,197
1934-1935	2,637,722
1935-1936	2,608,815
1936-1937 (six months, April 1 to September 30)	1,045,623

Population of Massachusetts, 1935 (State Census), 4,350,910.

Table 6. — New England Bituminous Tidewater Receipts by States — Net Tons

	Maine	New Hampshire	Massachusetts	Rhode Island	Connecticut	Total
1929	2,262,177	189,479	8,266,550	1,721,817	2,089,730	14,529,753
1930	2,228,573	110,403	7,985,267	1,480,101	1,947,804	13,752,148
1931	1,658,313	158,381	7,298,032	1,432,536	1,817,958	12,365,220
1932	1,349,142	154,500	6,421,273	1,015,268	1,538,209	10,478,392
1933	1,364,431	202,096	6,716,260	1,196,162	1,718,277	11,197,226
1934	1,576,825	172,782	6,974,780	1,139,020	1,721,280	11,583,687
1935	1,616,357	136,987	6,544,356	1,052,205	1,667,916	11,017,821
1936	1,689,331	134,315	6,704,972	1,129,096	1,918,930	11,576,644

*Table 7. — * New England Bituminous Imports by States — Net Tons*

	Maine and New Hampshire	Vermont	Massachusetts	Total
1929	44,273	—	5,841	50,114
1930	32,313	1	71	32,385
1931	61,463	106	5,159	66,728
1932	53,428	161	—	53,589
†1933	32,431	—	—	32,431
1934	35,262	141	62	35,465
1935	55,599	296	6,380	62,275
1936	76,162	2,100	—	78,262

*Included in above receipts.

†First six months only.

Source: Bureau of Foreign & Domestic Commerce, Washington, D. C.

Table 8. — New England All-Rail Bituminous Receipts by Roads — Net Tons

YEAR	N. Y., N. H & Hartford	Boston & Maine	Boston & Albany	Central Vermont	Rutland	Total
1929	4,023,064	1,043,822	1,195,308	317,535	201,911	6,781,640
1930	3,645,603	1,011,308	1,014,710	277,532	199,887	6,149,040
1931	3,313,695	1,016,494	818,523	265,037	197,046	5,610,795
1932	2,578,317	911,155	655,983	219,966	178,574	4,543,995
1933	2,545,254	1,146,059	684,748	229,732	181,226	4,787,019
1934	2,805,812	1,463,900	724,628	246,883	181,141	5,422,364
1935	2,709,333	1,358,492	681,729	278,339	182,390	5,210,283
1936	2,542,113	1,363,988	691,466	296,444	184,133	5,078,144

Table 9. — Summary of Fuels Used for Heating Homes in Massachusetts — Net Tons

	ANTHRACITE *Domestic Buckwheat	BITU- MINOUS	COKE	BRIQUETS	OIL (Gals.)	No. OF HOMES	†OTHER MANU- FACTURED FUELS
1926-1927	5,088,000	150,000	600,000	475,000	125,000	48,000,000	1,050
1927-1928	4,727,000	185,000	630,000	525,000	190,000	65,000,000	1,740
1928-1929	4,913,000	138,000	495,000	637,000	193,000	80,000,000	2,925
1929-1930	4,703,000	160,000	500,000	640,000	190,000	100,000,000	4,344
1930-1931	4,177,000	175,000	800,000	895,000	150,000	140,000,000	5,049
1931-1932	3,566,000	150,000	600,000	980,000	125,000	184,000,000	5,100
1932-1933	2,968,000	155,000	700,000	1,061,000	101,000	300,000,000	4,927
1933-1934	2,938,000	172,000	800,000	1,318,000	90,000	400,000,000	4,497
1934-1935	2,638,000	191,000	850,000	1,020,000	62,000	500,000,000	6,433
1935-1936	2,609,000	195,000	950,000	1,081,000	66,000	650,000,000	6,827

*Includes foreign fuel.

†Not compiled for these periods.

Table 10. — New England All-Rail Movement of Coal as Shown by Number of Cars of Coal Passing East through the Gateways

(Daily Average)

YEARS	ANTHRACITE				COMMERCIAL BITUMINOUS			
	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total
1925 . . .	126	46	167	339	77	61	135	273
1926 . . .	168	57	234	459	78	68	148	294
1927 . . .	140	50	210	400	74	62	135	271
1928 . . .	137	47	245	429	68	49	108	225
1929 . . .	134	43	222	399	74	60	121	255
1930 . . .	101	47	202	350	62	51	110	223
1931 . . .	75	32	177	284	49	40	102	191
1932 . . .	77	23	142	242	47	32	84	163
1933 . . .	68	21	133	222	51	34	85	170
1934 . . .	86	25	157	268	61	35	95	191
1935 . . .	81	24	141	246	57	34	92	183
1936 . . .	80	25	136	241	59	33	80	172

Table 11. — United States Production — Net Tons

										Anthracite	Bituminous
1929 . . .	.	.	.	.	.	.	.	.	.	76,888,000	526,361,000
1930 . . .	.	.	.	.	.	.	.	.	.	69,732,000	461,879,000
1931 . . .	.	.	.	.	.	.	.	.	.	59,667,000	378,241,000
1932 . . .	.	.	.	.	.	.	.	.	.	49,855,000	309,710,000
1933 . . .	.	.	.	.	.	.	.	.	.	49,541,000	333,631,000
1934 . . .	.	.	.	.	.	.	.	.	.	56,900,000	355,548,000
1935 . . .	.	.	.	.	.	.	.	.	.	50,443,000	364,723,000
1936 . . .	.	.	.	.	.	.	.	.	.	50,346,000	424,638,000

REPORT OF THE DIVISION OF OCCUPATIONAL HYGIENE

MANFRED BOWDITCH, *Director*

Demands for the services of the Division of Occupational Hygiene have shown substantial increase in the fiscal year just closed, with a total of 296 calls for what may be termed routine service, as compared with 187 in 1935, its initial year. Additional to compliance with these day-to-day requests, varying from the simple inquiry about a specific hazard to calls for investigation covering weeks or even months, has been the work of the staff and its W.P.A. helpers in prosecuting two special projects, carrying out a series of laboratory studies and co-operating with educational and research organizations in the common cause of occupational disease prevention. The 1935 report included an outline of methods and equipment which need not here be repeated. Admitting the shortcomings in organization and performance still apparent at the close of this second year, it may with honesty be said that the division has achieved a level of public usefulness not incommensurate with the anticipations which led to its creation.

Personnel. — There has been but one change in the division's personnel. Wesley C. L. Hemeon, S.M., replaced Edward C. Riley, M.Sc., as engineer on January 2, Mr. Riley remaining as supervising engineer of the Granite Dust Control Project until March 31. Supplementing its staff of five persons, the division has had the services of a varying number of part-time W.P.A. workers. As the year closes, there are seven such persons, five men and two women, connected with the Industrial Chemical Survey Project, as well as two male and six female Youth Administration workers employed in alternate shifts on special typing and copying work.

Quarters. — The division continues to occupy the first floor and basement at 23 Joy Street, Boston. Additional laboratory and field apparatus and the supplementary personnel mentioned above have crowded this space to its absolute limit.

Equipment. — The most important laboratory equipment secured during the year are a nephelometer attachment for the colorimeter mentioned in last year's report and an apparatus for microdetermination of halogens. New field equipment includes a storage battery for operation of the M.S.A. carbon monoxide indicator, a Bausch & Lomb dust counter, a General Electric "lamp shade type" mercury vapor detector and a direct-reading device for determining the magnitude of air currents, known as the Velometer.

Reference Library. — Additions to the reference library have included a number of bound volumes and many reprints, reports and papers culled from the technical journals. Typed copies of valuable references which are out of print have been made by the Youth Administration workers. Much time and effort has been given by the engineer to perfection of the classification system created by Miss Sullivan of the Boston Public Library. Since it is the only such classification in a field of growing importance, a suitable medium for its publication is being sought. Card cataloging of the reference material, a more laborious undertaking than had been thought, has continued throughout the year. While not as detailed as might be wished, a card for every important item in the files will before long have been completed.

SUMMARY OF ROUTINE WORK

The daily activities of the division have continued to include both field and laboratory work, chemical and engineering, in response to the demands of industrial conditions potentially unhealthy. More than keeping pace with the calls for laboratory and field service, as the availability of the service has become better known and understood, have been the multitude of requests for advice or information on subjects of occupational disease prevention which serve to emphasize the need of adequate reference sources in this varied and only partially explored field. Response to seventy-nine such inquiries received during the year from other states, the District of Columbia and foreign countries has brought, in return, information fully commensurate in importance to the effort involved.

Analysis of the year's total of 296 calls on the division's service shows the three principal *sources* to have been, as in 1935, employers, governmental agencies and insurance organizations, in the order named. Individuals and institutions in the medical and educational fields were fourth and fifth in number of requests, the advance of the medical inquiries from eighth place in 1935 to fourth in 1936 being an interesting sign of increasing co-operation with an agency thus far without medically trained personnel.* As will be seen from the following tabulation, all other groups were numerically minor.

Employers	75	Publishers	7
Governmental	50	Attorneys	6
Insurance	37	Industrial workers	6
Physicians, hospitals	23	Labor organizations	6
Education and research	22	Employers' associations	5
Industrial chemical manufacturers	11	N.O.C.	38
Protective equipment manufacturers	10		
Total			296

Classification by *nature of the industry* in relation to which inquiry was made shows the somewhat general category of electrical products manufacturing heading the list, followed by the notoriously dusty granite shops and foundries. This is accounted for by special attention devoted during the year to the heretofore little understood hazards of the chlorinated naphthalenes, largely used in certain types of electrical products. A summary of this activity will be found on a later page of the report. Inquiries relative to a variety of industries comprise the bulk of the group not otherwise classified in the following tabulation:

electrical products mfg.	27	electric utility	1
granite mfg.	17	feldspar mining	1
foundry	13	floor covering mfg.	1
shoe mfg.	9	fumigants mfg.	1
chemical mfg.	7	fur carroting	1
contracting	7	fur sales	1
fur cleaning	6	furniture mfg.	1
printing	6	games mfg.	1
rubber products mfg.	6	garment mfg.	1
machinery mfg.	5	instrument mfg.	1
wire, cable mfg.	5	iron smelting	1
automobile mfg., repairing	4	ladder mfg.	1
abrasives mfg.	3	leather soles mfg.	1
artificial leather mfg.	3	linen textiles mfg.	1
asbestos products mfg.	3	lithograph mfg.	1
tanning	3	lubricants mfg.	1
automobile body mfg., repairing	2	metal refining	1
explosives mfg.	2	mica products mfg.	1
hat mfg.	2	motor transportation	1
metal products mfg.	2	newspaper publishing	1
optical goods mfg.	2	painting	1
paint mfg.	2	paper mfg.	1
paper products mfg.	2	plate glass mfg.	1
rock crushing	2	police	1
rock quarrying	2	public works	1
shipbuilding	2	railroad	1
watch, clock mfg., repairing	2	rayon yarn mfg.	1
adhesives mfg.	1	real estate	1
armory	1	refrigerator sales	1
can mfg.	1	shovel mfg.	1
ceramics mfg.	1	silverware mfg.	1
coal sales	1	soapstone products mfg.	1
cotton textiles finishing	1	statistical service	1
dairy products sales	1	street railway	1
dry cleaning	1	storage battery mfg.	1

*Addition of a physician to the division's staff will be sought in the coming year.

synthetic resins mfg.	1	water works	1
tank mfg.	1	welding rod mfg.	1
vehicular tunnel operation	1	N.O.C.	110

Total	304		
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Analysis by *operations* considered produces a list of 108 individual operations, as well as several groups not readily subject to specific classification. At the head are three dusty categories, with two others accounted for by the chlorinated naphthalene investigation already referred to. It is of interest to note that only 32 of these operations duplicate the 95 listed last year, a total of 171 potentially hazardous industrial activities having thus been considered in the two years.

dusty, N.O.C.	33	fur blowing	1
granite cutting	19	fur carroting	1
soldering	16	fur handling	1
condenser, coil impregnating	15	gasoline storage	1
foundry work, dusty, N.O.C.	14	granite cleaning	1
metal cleaning, degreasing	8	hat coning	1
paint, varnish spraying	8	highway construction	1
electric welding	7	hydrogen making	1
abrasive blasting	6	lead burning	1
chemicals mixing	6	lead melting	1
fur cleaning	6	leather buffing	1
rock drilling	6	lens grinding	1
cable impregnating	5	linoleum drying	1
type cleaning	5	lithograph blanket washing	1
gasoline motor operating	4	lubricants mixing	1
oxyacetylene welding	4	metal mining	1
rock crushing	4	mica cleaning	1
rubber cementing	4	mica laminating	1
type metal melting, casting	4	millinery forming	1
fabric coating	3	oil ingestion	1
gas, oil heater operating	3	paper drying	1
shoe cementing	3	paper dyeing	1
acid dipping	2	paper making	1
brush painting	2	photographic developing	1
cable handling	2	pipe fitting	1
cadmium melting	2	pipe joint sealing	1
cleaning hands	2	printing plate grinding	1
condenser rolling	2	pulp shredding	1
heat treating	2	punch press operating	1
insecticide mixing	2	radio coil cementing	1
mica cutting	2	rag beating	1
monotype casting	2	rag cooking	1
paint, lacquer mixing	2	rag sorting	1
rubber curing	2	rag washing	1
tannery work, N.O.C.	2	rayon xanthating	1
textile spotting	2	rayon yarn spinning	1
wood sanding	2	refrigerator installing	1
asbestos weaving	1	resin mixing	1
battery plate casting	1	resin molding	1
box toe softening	1	resuscitation	1
brake lining curing	1	rubber dyeing	1
bronze printing	1	selenium annealing	1
cadmium spraying	1	selenium coating	1
chrome plating	1	selenium distilling	1
clock assembling	1	shoe breasting	1
coal handling	1	shoe cleaning	1
dust transportation	1	shoe treeing	1
electric meter repairing	1	silver buffing	1
fumigating	1	soapstone cutting	1

P.D. 104			137
sole sorting	1	wax melting	1
steam plant operating	1	welding rod coating	1
tank cleaning	1	wire stripping	1
textile dyeing	1	wire timing	1
textile fireproofing	1	wood shaping	1
vehicular tunnel employment	1	N.O.C.	89
water chlorinating	1		
Total			375

Silica dust again heads the list of *harmful materials*, the familiar benzol, lead, carbon monoxide and carbon tetrachloride hazards sharing the next four places with the more newly recognized chlorinated naphthalenes. The great variety of sources of occupational disease is again emphasized by the 75 here enumerated, of which 36, or nearly half, are newcomers in this year's list. Adding these to the 80 recorded in 1935 gives a total of 116 for the two-year period.

silica dust	72	aluminum oxide dust	1
chlorinated naphthalenes	34	amyl acetate	1
benzol	19	arsenic	1
lead, lead compounds	19	bone meal dust	1
carbon monoxide	17	calcium hypochlorite	1
carbon tetrachloride	16	carbon bisulfide	1
dusts, N.O.C.	15	chalk dust	1
fumes, N.O.C.	10	coal ash dust	1
toluol	8	cotton dust	1
gasoline, naphtha	7	creosote	1
welding fumes	7	dyes	1
chromic acid, chromates	6	ethyl acetate	1
acetone	4	ethyl alcohol	1
ammonia	4	heat	1
cadmium	4	hydrofluoric acid	1
hydrochloric acid	4	hydrogen sulfide	1
methyl alcohol	4	infection	1
trichlorethylene	4	leather dust	1
anthrax	3	lime	1
butyl acetate	3	mercuric chloride	1
chlorine	3	methyl chloride	1
mercury	3	naphthalene	1
mica dust	3	nitric acid	1
oxygen deficiency	3	nitrogen dioxide	1
radium	3	oxalic acid	1
skin irritants, N.O.C.	3	phosgene	1
asbestos dust	2	range oil	1
chlorinated diphenyls	2	selenium	1
coal dust	2	soapstone dust	1
cyanides	2	sodium bisulfite	1
ethylene dichloride	2	sodium sulfite	1
formaldehyde	2	sulfur chloride	1
phenol	2	sulfur dioxide	1
silver	2	titanium oxide	1
sodium carbonate	2	turpentine	1
sulfuric acid	2	xylol	1
talc	2	zinc chloride	1
wood dust	2	zinc oxide	1
acrolein	1	N.O.C.	50
Total			391

A total of 107 visits to industrial establishments were made by members of the staff in response to the calls analyzed in the above tabulations. Routine field determinations of fume or dust concentrations totalled 117, laboratory determina-

tions* 161, these being additional to the far larger numbers of such determinations noted herein below in connection with special activities.

Chlorinated Naphthalenes:

The outstanding importance and interest attached to developments resulting from one of the year's many calls for assistance definitely justify special mention in concluding this brief summary of routine activities.

On March 25 a telephone call from a physician in a distant part of the state brought word that a worker in a local electrical specialties factory lay stricken with a serious and unusual affection of the liver. Another worker in the same factory had died some weeks before with similar symptoms, but a possible industrial connection had not then been thought of and burial had taken place without autopsy. Might these cases be industrial? Could the division be of help?

Through the exchange of information maintained between the occupational hygiene office and equivalent agencies in other states, it was known that similar cases had recently occurred in Connecticut and Pennsylvania, that each had been in connection with the manufacture of electrical products, and that certain insulating waxes, known chemically as chlorinated naphthalenes and chlorinated diphenyls, were suspected as causative agents. The answer to both of the doctor's questions was therefore affirmative and an appointment was made for ten the next morning.

At the doctor's office it was learned that the second patient had died during the night and that an autopsy had been arranged. At the factory it was found, as anticipated, that the suspected insulating waxes were an important manufacturing material, but that the two deceased workers had apparently had relatively little exposure to their vapors. Quite excusably, since no definite information was yet publicly available and the makers of the waxes were themselves discounting the possibility of systemic poisoning, the employer was quite unaware of any important hazard. On the basis of information imparted on this occasion, immediate steps were taken toward adequate safeguards and close touch with plant conditions has since been maintained by the division. A third worker apparently stricken with the same malady a week later was restored to health.

The more important subsequent steps taken to prevent further occurrence of such poisoning in the Commonwealth's factories were as follows:

1. A list of Massachusetts users of these waxes, requested some months before, was now secured from the producers.
2. A warning letter was immediately sent to all such plants, urging prompt reporting of any suspected case.
3. No satisfactory method for the determination of the fumes of organic chlorine compounds being available, the development of such a method was successfully undertaken by the division's chemist.
4. A thorough laboratory study was made of the physical and chemical properties of these compounds.
5. Every factory using the waxes was visited, conditions carefully checked and advice given as to proper safeguards.
6. A search was made of both American and foreign technical literature for references possibly germane to the problem.
7. All known sources of possible information were communicated with and the death records of the community in which these cases had occurred were checked for a 5-year period.
8. The makers of the suspected waxes were strongly urged to underwrite a program of suitably supervised animal experimentation to determine the nature and degree of hazard inherent in use of their products.

The manufacturers of these waxes, for whom it must be said that their products had been in use for over twenty years without positive proof of injury other than an acneform dermatitis (often severe), have been entirely co-operative in the prosecution of this investigation. At their behest, an extensive series of animal experiments has been undertaken at the Harvard School of Public Health, under the guidance of Dr. Cecil K. Drinker. While final results are yet to be announced, there is indication that the vapors of certain of these products will be shown to be

*The reduction in number of routine laboratory determinations is accounted for by the facts that (1) initial calibration of laboratory apparatus and establishment of standard methods necessary in 1935 was not repeated, and (2) much such work was this year assigned to special studies.

highly toxic under special circumstances. Since they are widely used in the manufacture of condensers, coils, cables and other electrical specialties requiring waterproof or flameproof insulation of high dielectric strength, the producers have engaged a qualified chemist to visit and check conditions in the plants of their customers throughout the country. Two other manufacturing chemical houses making related compounds have instituted similar investigations and it may be said with reasonable surety that the salient facts of an important and hitherto baffling problem of industrial toxicology will before long be brought into the open.

No further cases have been reported in Massachusetts.

INDUSTRIAL CHEMICAL SURVEY

While many hundreds of chemical substances harmful to health are used in the industries of the Commonwealth, there has been in the past little accurate knowledge of the extent or manner of their use, or of the degree of hazard which such use entails. To secure such information more quickly than would be possible through the routine activities of the division and thus promote the preventive program, application was made to the Works Progress Administration late in 1935 for the services of a small group of technically trained men to undertake an industrial chemical survey under the direction of the chemist. Federal approval of the project* was granted as the year closed and prompt handling of the preliminaries enabled the actual survey work to start early in 1936. The work in six industries, lead storage battery manufacture, paint manufacture, shoe manufacture, wood heel covering, rubber goods manufacture and fur cleaning, was completed in the current year and twenty-four plants were covered in a preliminary investigation of the woolen and worsted goods industry. Abbreviated summary reports of these studies follow.

LEAD STORAGE BATTERY MANUFACTURE

In this survey, conducted during the winter and spring months, four plants were visited and studies of lead exposure were made in three. Twenty-six determinations of lead concentration were made in as many working atmospheres. The lead content of the air was determined by collection of solid material from the atmosphere with the Greenburg-Smith impinger apparatus, followed by chemical analysis of the resulting sample. It was noted that none of the four concerns carried workmen's compensation insurance.

Table 1 summarizes the findings as to amounts of lead found in the atmosphere at various stages in the manufacturing operations.

*W.P.A. Project No. 65-14-6060.

Table I. — Atmospheric Lead in Storage Battery Manufacturing Operations

GENERAL AIR IN CHARACTERISTIC WORKING AREAS	MILLIGRAMS LEAD PER 10 CU. METERS AIR		
	Range of Concentrations	Average Concentrations	Results found in a Study by U. S.P.H.S.
Plate casting, small parts casting, drying room, repairing. (Very little walking about or no active source of lead dust.)	1.0- 3.9	2.6	1.3*
Mixing Room. (Handling of raw oxide powder. Large exhaust fans drawing air from pasting room.)	4.5- 8.8	6.6	164
Pasting Room. (Dried paste on equipment, workers' clothes and floor.)	11-21	16	16
Assembly Room. Plate breaking, grouping and group-burning. (Handling of dry plates.)	9.4-18	13	5.7
AIR AT BREATHING ZONE IN SPECIFIC OPERATION	MILLIGRAMS LEAD PER 10 CU. METERS AIR		
	Range Concentrations	Average Concentrations	Results found in a Study by U.S.P.H.S.
Group Burners. (Fumes from fusing lead and dust from dried plates.)	9-61	31	4.0
Plate Casters. (Fumes from molten lead.)	2.5-11	6.5	1.9

*Applies only to plate casting.

For purposes of comparison, some values reported in the extensive investigation of the U. S. Public Health Service in a large battery plant have been included. It was established by that investigation that the maximum permissible concentration for continued exposure day in and day out is 1.5 milligrams per 10 cubic meters. That is, lead absorption resulting eventually in lead poisoning, will occur if the average worker is consistently exposed to higher concentrations and, if the concentration be appreciably less than that value, the chances of his contracting lead poisoning are small.

The results, it will be noted, have been grouped according to the general nature of the operations involved. Because of the small scale on which the plants operate, it was not practical to segregate operations to any great extent.

Pasting. — In the vicinity of the pasting operations, the lead content of the air is high. As indicated in the table, all this dust is the product of dried paste on the pasting machine, the pasting bench, the workmen's clothing and the floor. The considerable activity in this area causes this dried paste to be brushed against and walked upon, thus disseminating it into the air.

Mixing. — In all cases where samples were obtained of air around the mixing tubs, powerful exhaust fans were operating and the net result was an air movement from the pasting room or pasting area into the mixing room. It will be noted that the lead content of the air in the mixing rooms is considerably lower than in the pasting room. This is a reflection of the care that has been taken to reduce the exposure in what formerly was one of the most hazardous operations in storage battery plants. An example of such a condition is seen in the U. S. Public Health Service study, in which lead concentrations in the mixing room were 25 times the average found in Massachusetts plants. The latter is still, however, three to six times the concentration considered safe.

Assembly Room. — The general air of the assembly room shows a lead content not substantially different from that in the vicinity of the pasting operations. In this room the principal activities involve the handling of dry plates. The dry paste is friable and some of it dusts off whenever jarring occurs. As in the pasting section, there is considerable dust on the floor which, when walked on, is disseminated into the air.

Group Burning. — In group burning, the air was in all cases sampled close to the operator's chin. The range of lead concentrations found here was greater than in any other section. The torch used to weld the lead in joining the several plates together causes a localized high temperature resulting in considerable volatilization and oxidation of the metallic lead. This condition also creates a strong upward current of air and lead fumes toward the face of the operator. The lead fumes breathed by the group burner are in two forms, one a very finely divided, oxidized lead from the metal, the other a somewhat coarser dust from rubbing together of the dry paste in the plates. In one case, where downward draft was provided in the workbench, the concentration of lead in the air breathed by the burner was around 23 mg. per 10 cubic meters. Where the highest concentration was found in this operation, no means had been provided for the removal of either source of lead.

Summary and Conclusions. — Local exhaust ventilation facilities for removing lead dust and fumes at their sources varied widely between the plants, though it may in general be said that the greatest need in these factories is not increased exhaust ventilation, but rather various improvements aimed to facilitate general cleanliness and good housekeeping. Even in the plants best equipped with local exhaust systems, the hazard is still considerable.

PAINT MANUFACTURE

Eight establishments, employing a total of 389 wage earners, were included in this survey. Determinations of exposure to toxic dusts were made in seven. All the firms visited carried compensation insurance. Six retained physicians on a part-time basis, one had a nurse and four a safety engineer or safety committee. One required pre-employment and periodic physical examination of its employees.

Hazardous Substances Used.—The greatest health hazard in this industry is of course lead. This was present in several different pigments used in large quantities in all the eight plants visited, but in one plant all pigments were bought in the form of oil pastes, so that the chief source of dust, the handling of the dry pigment, was eliminated.

Other toxic pigments included cadmium, arsenic, selenium and chromium compounds. Among the less toxic pigments used in large quantities were lithopone, zinc oxide and titanium dioxide. Silica in various forms was used as a filler.

Toxic solvents more or less generally used included methanol, methyl acetone, toluol, solvent naphtha, carbon tetrachloride and ethylene dichloride. Less harmful were turpentine, acetone and various petroleum fractions.

Benzol was used in making paint removers in four of the eight plants.

Experience with Hazardous Materials.—Only one establishment admitted a history of lead poisoning, having had one case in the past five years. In another plant, irritation of the eyes due to some of the petroleum fractions was reported as the only unfavorable experience with the chemicals used.

Determination of Exposure to Lead Dust

Mixing Room.—The survey revealed the mixing machines as a chief source of atmospheric dust. In none of the plants surveyed were there exhaust or fan systems near these machines. The lead compounds, when dumped or shoveled into the mixers, gave off clouds of dust which was dispersed throughout the room and, because of its small particle size, was extremely slow in settling. Analysis showed high concentrations to be present in the atmosphere one-half hour after the mixing process had been completed. Deposited on floors, sills, and other objects in the room, or even diffused to other departments, drafts from open windows and doors would again disseminate the settled dust and in this manner a hazardous concentration of dust was at all times present in the mixing room. The faces of the men engaged in mixing were often covered with dust. Two samples obtained before mixing operations had started for the day showed high concentrations of lead still present in the air from the activities of the day before. The dust of chrome green (containing lead chromate) was conspicuous in some plants on all objects within a radius of 20 feet of the mixer used for this paint.

Carelessness in opening containers of lead compounds and in moving these containers, usually open barrels, resulted in the production of an unnecessarily large amount of dust. It was also observed that sweeping during working hours was customary.

Table II gives the results of analyses of forty-one samples picked up in the mixing departments of the seven plants using dry pigments.

Grinding Room.—Although it was found that the grinding process did not of itself give rise to any lead dusts, the location of the grinding machines was in two plants so near the mixing machines that low concentrations of lead, generated by the mixers, were found in their vicinity. Table III gives the results of the two samples obtained under these conditions.

Canning and Labeling Rooms.—It was apparent that the operations of canning and labeling did not give rise to any lead hazard. The paint was carefully handled in canning and was at no time allowed to dry or to be scraped when dried. In the two plants where canning and labeling operations were adjacent to the mixing department, low atmospheric lead concentrations were again found. Figures for these cases will be noted in Table IV.

Table 11. — Air Analyses in Paint Mixing Departments

Location	Type and Quality of Paint Prepared	Source of Lead	Number of Men Exposed	Number of Men Wearing Respirators	Operation	Duration of Test (avg.)	Lead Concentrations (mg. per 10 cu. meters)		
							min.	max.	avg.
By mixer (10 samples)	Outside white	White lead (dry) zinc oxide	12	6	Preparing and completing mix.	(1) 31 min.* (2) 25 min.**	(1) 3.8* (2) 15.6**	132.0 132.0	58.0* 80.8**
10 ft. from mixer (6 samples)	Outside white	White lead (dry) zinc oxide	12	8	Preparing and completing mix.	25 min.	2.8	41.0	10.5
By mixer (6 samples)	Outside white	White lead (dry) zinc oxide	12	0	After mixing operation	27 min.	2.1	122.0	30.8
10 ft. from mixer (4 samples)	Outside white	White lead (dry) zinc oxide	11	0	After mixing operation	33 min.	1.3	20.6	6.65
By mixer (5 samples)	Chrome green	Lead chromate	12	7	Preparing and completing mix.	41 min.	2.3	15.8	9.4
10 ft. from mixer (4 samples)	Chrome green	Lead chromate	12	7	Preparing and completing mix.	25 min.	1.2	18.6	6.2
By mixer (2 samples)		Dust from previous mixes	4	0	Previous to mix.	40 min.	1.3	27.0	14.1
Center of room (4 samples)		Dust from floors, objects and previous mixes	7	0	Launch period	63 min.	1.0	2.5	1.5

*Includes three samples taken over a period of one hour, both during and after the mixing process.

**Includes only the seven samples taken during actual mixing operation.

Table III. — *Air Analyses in Paint Grinding Rooms in two plants where mixing, grinding, canning and labeling were adjacent*

LOCATION	Type and Quality of Paint Prepared	Source of Lead	Number of men Exposed	Respirators	Operations	Duration of Test (avg.)	LEAD CONCENTRATIONS (mg. per 10 cu. meters)		
							min.	max.	avg.
By grinders (2 samples)	Outside white	Dust emanating from mixing dept.	17	0	Grinding of paint	64 min.	1.2	1.7	1.4

Table IV. — *Air Analyses in Paint Canning and Labeling Departments in two plants where mixing, grinding, canning and labeling were adjacent*

LOCATION	Type and Quality of Paint Prepared	Source of Lead	Number of Men Exposed	Respirators	Operations	Duration of Test (avg.)	LEAD CONCENTRATIONS (mg. per 10 cu. meters)		
							min.	max.	avg.
Canning and Labeling Tables (3 samples)	Outside white and chrome green	Dust emanating from mixing dept.	19 M 5 F	0 0	Canning and labeling	60 min.	.30	1.2	.80

Dust Containing Arsenic

One test was made beside a mixer making a paint containing Paris green. The sample was tested for arsenic and copper and both were found to be present in a concentration of 150 mg. per 10 cubic meters of air. The operator wore a respirator throughout the process.

Discussion of Results

A striking feature of the results shown in Table II is the great difference in concentrations of lead dust, especially close to the mixing operation, in the different plants. Even if the two lowest values are thrown out as being unrepresentative, there is a wide spread between 15.6 mg. and 132 mg., the extreme values obtained. This spread may be due to several factors: size of batch, composition of batch, care used in handling pigment or rate of air circulation in the vicinity of the mixing machine. While a high concentration of lead dust may be due to factors less tangible than the ordinary forms of managerial negligence, and fortuitous circumstances may produce an opposite condition, it should be noted that in one plant, where a dough mixer was used to mix large quantities of paint in a single batch, the lead dust concentration was kept to 19 mg. through exceptional care in the handling of materials.

In mixing chrome green paint the lead concentration was less than with white lead, but, with one exception, still substantial.

The concentration of lead in the air before and after the mixing operation, as well as that in the center of the mixing room when no lead paint was being mixed, was high enough to be significant, in no case being below one milligram per ten cubic meters. Exposure to such concentrations was long continued and complete, since respirators were not worn. Similarly, the concentrations of lead in the grinding departments (Table III) in those plants where they were not well separated from the mixing rooms were close to the 1.5 mg. per ten cubic meters, which is believed to be the highest concentration which will not cause lead poisoning. On the other hand, there seemed to be little lead hazard in the canning and labeling departments (Table IV), where women are employed.

Use of Respirators

As shown in Table II, the majority of the men wore respirators when working in high lead dust concentrations. In two plants they were not worn when mixing chrome green paint, while in only one were they not used for mixing white lead. In but one plant, however, was a respirator of the type approved for lead dust by the U. S. Bureau of Mines furnished. The degree of protection afforded by the "nuisance dust" type respirator used in the other plants is uncertain. Substitution of approved lead dust respirators, which are but little more expensive, is emphatically called for. Fortunately, the mixing operation is sufficiently short and intermittent to make the use of respirators practicable.

SHOE MANUFACTURE

In this survey forty-nine establishments employing 18,050 wage earners, 7,970 of whom were females, were visited. These factories may be grouped according to the type of shoe manufactured, as follows:

Table V. — Shoe Factories Visited, by Type of Shoe

TYPE OF SHOE	NUMBER OF FACTORIES VISITED			
	Women's Shoes	Men's Shoes	Other	TOTAL
Cemented . . .	12			12
McKays . . .	12	4		16
Welts . . .	3	14		17
Other* . . .	—	—	4	4
Total . . .	27	18	4	49

*Slippers, stitchdowns.

Another classification of interest is as to grade of product:

Table VI. — *Shoe Factories Visited, by Grade of Shoe*

	NUMBER OF FACTORIES VISITED	
	Men's Shoes	Women's Shoes
High Grade	7	2
Medium Grade	7	15
Low Grade	4	10

Twenty-nine per cent of the establishments visited employed a person designated as a safety engineer; fifteen per cent had a safety council. Twelve per cent engaged the part-time services of a physician; eighty-three per cent had a female employee rated as capable of serving as a nurse. In only one factory were the employees subjected to any form of physical examination, this being a pre-employment examination given by the nurse.

Chemicals Used in Shoe Manufacture. — The most important chemical products found in shoe manufacture may be classified as cements, stains, finishes, bleaches and cleaners, the use of nearly all of which is on the increase. In the analysis of over 100 samples of such products collected in the course of the survey, no attempt was made to determine the exact formula of the various materials, but the important volatile constituents were identified and their respective quantities estimated. Of the sixteen included in the nineteen hazards listed in Table X, all but ammonia and oxalic acid are volatile organic solvents.

Benzol. — The most important chemical health hazard in the shoe industry was found to be benzol. Its chief use is in rubber cements. Although it has been largely displaced by naphtha, and despite the fact that rubber cements have been partly replaced by latex cements, products containing benzol are used in significant quantities in an appreciable proportion of shoe factories. The various materials found to contain benzol, with the number of factories using them, are shown in Table VII. Some of these items, notably crepe sole cements and white cleaners, are used only in certain seasons.

Table VII. — *Materials Found to Contain Benzol*

PRODUCT CONTAINING BENZOL	Number of Factories
Rubber heel cement	8
Breasting cement	5
Crepe sole cement	5
Channel cement	4
Sole cement	4
Liquid benzol	3
Stain	1
White cleaner	1
Total	31

If the quantity of benzol is taken into consideration, the most important benzol-containing materials are rubber heel cements and breasting cements.

In Figure 1, showing the relationship between the amount of benzol used and the type and quality of shoes manufactured, it will be seen that relatively more benzol is used in making high grade shoes (welts) than in other types. Nearly ninety per cent of the high grade shoe factories used benzol in some form, as compared with only fourteen per cent of the factories making cheap types, chiefly McKays. About half the factories making medium grade shoes used products containing benzol.

In order to measure the degree of exposure to benzol vapor, tests were made in the vicinity of ten different individual operations involving six processes using benzol. The results of these tests are shown in Table VIII.

Of the six processes involving the use of benzol cements and not equipped with blower systems, all but one showed amounts of benzol vapor greater than 100 parts per million, which is the greatest concentration considered safe for all-day exposure, while the three operations equipped with local exhaust systems showed less than 50 parts per million. It is apparent that such blower systems, which satisfactorily eliminate the benzol hazard, should be installed whenever it is necessary to use benzol cement in any quantity.

A relationship between quantity of benzol used and probable exposure may be obtained from these data, from which it is apparent that when much more than one gallon per day is used there may be exposure to concentrations above the allowable limit. In the case of the white cleaner and uniform, of which about one gallon per day was used by a group of six workers, an average concentration of 35 parts per million was found, indicating satisfactory conditions. It is not shown conclusively which of the cementing processes are most hazardous, but the single test made on channel cementing indicated a lower exposure than was found for any other cementing operation carried out without exhaust protection.

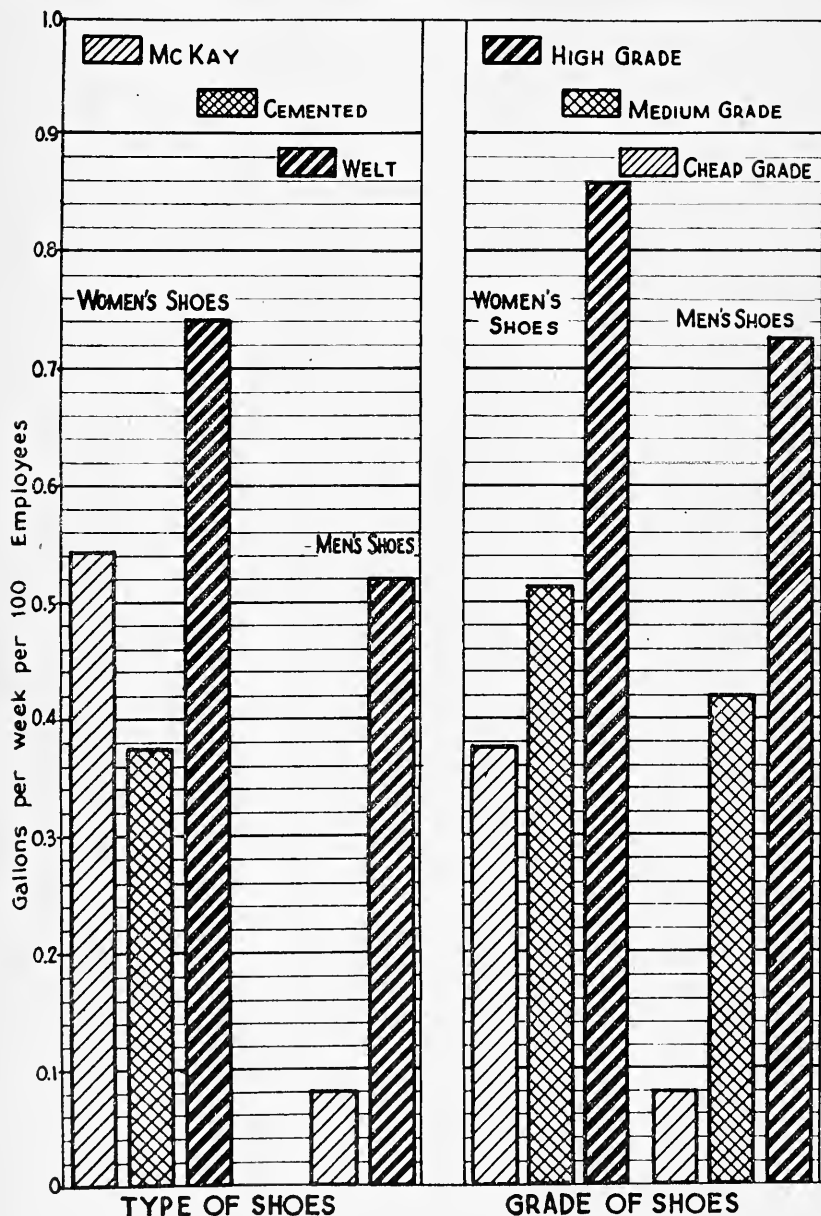


Figure 1. Consumption of Benzol in Shoe Manufacture

Table VIII. — *Air Analyses for Benzol Vapors*

OPERATION	Product — Per cent Benzol in Solvent	Amount Used	PERSONS EXPOSED		Number of Analyses	CONCENTRATION OF BENZOL VAPOR (Parts per million)			Ventilation
			Male	Female		Max.	Min.	Avg.	
Breasting	Breasting cement (50% benzol)	2½ gal. per day	8 (indirectly)	3	5	720	120	355	Natural
Breasting	Breasting cement (55% benzol)	6 gal. per day	10		3	230	12	110	Natural
Cementing Channels .	Channel cement (75% benzol)	¾ gal. per day	1		2	70	55	60	Natural
Cementing Bottoms .	Sole cement (80% benzol)	2 gal. per day	1		2	385	350	365	Natural
Cementing Soles . .	Rubber sole cement	1½ gal. per day	1		1	200		200	Natural
Cementing Soles . .	Sole cement (100% benzol)	2 gal. per day	1		1	30		30	Local Exhaust (Down Draft)
Cementing Rubber Heels	Rubber heel cement			1	2	20	13	16	Local Exhaust (Down Draft)
Cementing Rubber Heels	Rubber heel cement (50% benzol)	2 gal. per day	2		2	455	415	435	Natural
Cementing Rubber Heels	Rubber heel cement (95% benzol)	2 gal. per day		1	2	35	12	23	Local Exhaust (Down Draft)
Treeing	Cleaner and uniformer (24% benzol)	1 gal. per day	6		3	50	25	35	Natural

The maximum allowable concentration of benzol vapor for continued exposure is 100 parts per million.

Benzol was found in a black stain used in small amounts, and it was used for cleaning a cementing machine in one plant.

The advantages of benzol cements over cements in which naphtha is the solvent are disputed. Benzol is a better rubber solvent than naphtha and makes a faster-drying cement. While naphtha breasting cements are said to be as efficient as the benzol cements, the latter are often preferred for attaching rubber to leather. Thus the crepe sole cements and rubber heel cements frequently contain benzol. Four of the plants visited discontinued the use of benzol as a result of the survey, while one installed a blower system. Three plants are known to have given up benzol cements for economic reasons.

It was found that the benzol labeling law was usually obeyed by the firms supplying products containing benzol to the shoe manufacturers. The small containers from which the cements or other materials were used were, however, frequently not labeled. Copies of the benzol labeling law were sent to all plants not observing it.

Other Solvents. — Air analyses were also made in the vicinity of processes employing other solvents, notably acetone, ethyl acetate, ether and naphtha. The results of the more important of these are shown in Table IX.

The greatest exposure to solvent vapors in the processes here enumerated occurred in softening the pyroxylin cement used in attaching soles to uppers in cemented shoes. The highest total vapor concentration found for this operation was 465 p.p.m., consisting chiefly of naphtha and ether vapors. The concentration of ether vapor found in the treeing operation, 90 p.p.m., was believed to be lower than that frequently encountered.

Table IX. — Air Analyses for Other Solvents

PROCESS	Number of Tests	PERSONS EXPOSED		AVERAGE CONCENTRATION OF VAPOR FOUND (Parts per million)				
		Male	Female	Acetone	Ethyl Acetate	Ether	Naphtha	Total
Bleaching Soles . . .	2	0	3	22	—	—	—	22
Pasting Underlays . . .	1	0	3	2.5	45	—	—	48
Softening Celluloid Box Toes	2	5	0	45	45	—	—	90
Softening Pyroxylin Cement.	4	9	0	45	35	Present	Present	335
Cementing Lasting Allowance	7	2	10	—	55	—	—	55
Treeing	2	19	0	—	—	90	—	90
Cementing Channels . . .	1	1	0	—	—	—	95	95

Tests for carbon monoxide in the vicinity of edge setting, heel burnishing and box toe softening machines showed negligible concentrations of this gas.

Other toxic solvents found in relatively small quantities were carbon tetrachloride, carbon bisulfide and methanol. Carbon tetrachloride was used by eight factories, while three reported having had unfavorable experience with it. Methanol was used more widely and one plant reported having had trouble with it. Carbon bisulfide, the most toxic solvent found in the survey, was used in oil spot removers in seven factories, as well as in one special rubber cement. Toluol and trichloroethylene were used in small quantities. Orthodichlorobenzene was apparently substituted for nitrobenzene in one product. The latter was nowhere found.

A summary of the potential hazards found, and the departments in which they occurred, is shown in Table X.

WOOD HEEL COVERING

Heels for women's shoes are commonly made of wood, to the surface of which a decorative covering material is attached. Wood heel covering is an industry in its own right, the cut heel blocks being usually purchased from wood heel block manufacturers and selected coverings applied according to market demands.

A census in 1934 by the Division of Statistics of the Department of Labor and Industries found 41 Massachusetts establishments engaged in the wood heel covering business, employing a total of 1,249 employees. This figure includes 3 which make their own blocks. In the course of this survey 13 of these plants, employing 508 persons, were visited and air analyses were made in 8.

Of 508 employees in the plants visited, 209, or 41%, work in the covering rooms. Applying this ratio to the census figures referred to, it appears that between 500

Table X. — Health Hazards in the Manufacture of Shoes

DEPARTMENT	M-Found in men's shoe factories.	W-Found in women's shoe factories.	Small letters indicate isolated cases.	Acetone	Ammonia	Amyl Acetate	Benzol	Carbon Bisulfide	Carbon Tetra-chloride	Dichlorobenzene	Ether	Ethyl Acetate	Ethyl Alcohol	Methanol	Methyl Acetate	Naphtha, Gasoline, etc.	Oxalic Acid	Toluol	Trichlorethylene	Carbon Monoxide	Dust, inorganic	Dust, leather	Totals	
																							M	W
Cutting	W	MW	m	M	m	m			W	W	MW	W	MW		MW	m		MW		1	1
Stitching	MW	MW		M					MW	W	MW	W	MW			MW				2	4
Stockfitting	MW	MW		M					MW	W	MW	W	MW			MW				11	8
Lasting	MW	MW		M					MW	W	MW	W	MW			MW				6	4
Making	MW	MW		M					MW	W	MW	W	MW			MW				8	9
Finishing	MW	W		M					MW	W	MW	W	MW			MW				10	9
Packing	MW	MW		M			m	MW	MW	MW	MW	M	MW				MW			12	13
Totals	5/6	5/6	1/0	5/2	2/1	3/1	1/0	1/2	5/6	1/2	3/3	2/2	5/6	1/2	1/3	2/1	1/1	5/2	1/2	50	48

and 600 workers are employed in covering rooms and are thus exposed to methanol vapors in the wood heel covering plants of this state.

Toxicity of Methanol. — Chemically pure methanol is poisonous to the human body when breathed as vapors in air. It has particular affinity for nervous tissue and is most likely to affect the optic nerve and to produce blindness, either temporary or permanent. Fatalities, although rare, have been known to occur as a result of exposure to its vapors. Best authority indicates that if the air contains less than 200 parts per million no harm is likely to result.

Present Methods of Ventilation. — Rooms in which covering operations are conducted are required to be fireproof because of the inflammable character of the celluloid and methanol. The celluloid covers are stored in fireproof vaults. Interior walls are usually lathed and plastered and it is required that doors communicating with other parts of the building shall be kept closed.

All establishments visited were ventilated by means of one or two propeller fans drawing air from the interior and delivering it to the outside atmosphere. Fans of this type are characterized by marked reduction in capacity when even slight resistance to flow of air is interposed. It is not at all uncommon for covering rooms to be so well insulated against the spread of fire that, when doors are closed, the effectiveness of the fans is reduced to a fraction of their capacity under conditions of free entrance of air into the room. General ventilation as provided by such fans might be adequate for small rooms if communicating doors could be kept open, though objectionable drafts would probably be a deterrent factor. For large rooms, general ventilation is entirely inadequate to keep the concentration of methanol vapor below 200 parts per million.

Atmospheric Analyses. — The results of the atmospheric analyses made in this survey are summarized in Table XI.

Table XI. — Air Analyses in Wood Heel Covering Rooms

PLANT No.	AIR ANALYSIS METHANOL VAPOR (Parts per Million)		
	1	2	Average
1	700	880	780
2	470	480	475
3	280	450	365
4	200	320	260
5	135	280	210
6	110	260	185
7	170	190	180
8	125	200	160

Principal Sources of Vapor. — Four stages in the process of covering the wood heel in which evaporation of methanol may occur to contaminate the atmosphere are (1) soaking the celluloid covers in a pan of methanol, usually covered, (2) removing the soaked covers from the pan and temporarily storing them between folds of a towel on the bench, (3) removing a wet cover from the towel and applying it to a heel, and (4) placing the covered heel on the open bench to dry. It was of interest to discover the relative proportion of vapors arising from each of the last three operations. Determinations of loss in weight of the covers in the various stages enabled calculation of such figures with the following results:

	<i>Per Cent of Total Methanol Evaporated</i>
While resting between folds of towel	33.0
During actual manipulation by operator	16.4
Finished heel resting on bench	50.6
	<hr/> 100.0

The foregoing figures lead to the conclusion that, by controlling the vapors from the storage towel and from the finished heels, a major reduction in the atmospheric concentration of methanol vapors may be realized. They show that evaporation of methanol from the covers while in the workers' hands accounts for only

a minor proportion of the total and that it will therefore not be necessary to provide local exhaust for vapors from that source.

A ready solution of this problem would thus appear to be the installation of a simple hood enclosing those areas where the damp towel and finished heels lie and connecting this to an exhaust system. A very small volume of air would suffice to provide an adequate linear velocity at the open face of the hood.

RUBBER GOODS MANUFACTURE

Fifteen establishments employing a total of about 8,600 workers were included in this survey. All carried compensation insurance. Pre-employment physical examinations were given in eight plants, periodic examinations in five. One retained the full-time services of a physician, four had physicians in part-time regular attendance, six employed nurses and an equal number had hospital rooms. Seven had safety engineers and six had safety committees.

The more important chemical hazards of the industry are shown in Table XII. Air analyses were made in nine plants to determine the exposures to ten of these hazards, which may be classified as dusts, toxic solids and vapors and gases.

Dusts. — The dust hazard in the rubber industry was found to consist chiefly of miscellaneous dusts, containing little or no free silica. Compounding and mixing room dusts presumably contain small amounts of accelerators and pigments, some of which are toxic, and larger amounts of fillers, relatively non-toxic. The later operations were found frequently to involve exposure to talc dust. Reasonable standards of housekeeping and working environment demand that atmospheric dust concentrations in industrial establishments be kept to within a limit of some 50 million particles per cubic foot. It is seen in Table XIII that in only two of six groups of analyses other than starch was the maximum dust count below this figure. The average concentration was, however, below or close to 50 million particles, except in one milling room where the mills were not equipped with exhaust hoods. The counts obtained in this case were far above the safe concentration, even for relatively harmless dusts. The hygienic significance of starch dust, exposure to which was measured in two plants, is probably slight.

Table XII. — Health Hazards in the Rubber Industry

A — Potential hazard only. B — Actual hazard found.

DEPARTMENT	Accelerators	Ammonia	Antimony sulfide	Antioxidants	Benzol	Cadmium sulfide	Carbon tetrachloride	Dust (general)	Lead chromate	Lead (metallic)	Lead (litharge)	Naphtha	Starch (dust)	Sulfur monochloride	Talc (dust)	Zinc Compounds
Compounding	A		A	A		A		A	A		B					A
Dusting													A			
Spreading												A				
Churning												A				
Coating					B											
Dope-making					B											
Hose-making							A			B				B	A	
Curing																
Neutralizing		A						B								
Milling																

Table XIII. — Air Analyses for Miscellaneous Dusts in Rubber Goods Manufacture

OPERATION	Composition of Dust	Number of Samples	Dust Count (Millions of Particles per Cubic Foot)	Gravimetric Analysis (Mg. per Cubic Meter)	Ventilation
Compounding	Mixed	2 4	20 to 100 6 to 35	2.7 to 16 4.3 to 15	Natural Natural
Milling	Mixed	2 2	40 to 50 140 to 1200	12 to 16 198 to 613	Local exhaust Natural
Hose Making	Talc	3 2	2 to 9 60 to 70	20 to 109 29 to 133	Natural Natural
Dusting	Starch	1 4	— —	35 35 to 222	General and Local exhaust Local exhaust

Toxic Solids. — Compounds of the poisonous metals, antimony, cadmium, chromium and lead, were used as colors, and some exposure to these dusts was inevitable. As a rule, however, the quantities used were small and the exposure, primarily in the compounding and milling departments, was irregular and apparently unimportant.

The accelerators used included lead oxide (litharge) and various organic compounds. Of the nine organic accelerators found in general use, one, hexamethylene tetramine, is highly toxic and three others, diphenyl guanidine, diorthotolyguanidine and thiocarbamilid, are poisonous in some degree. Primarily irritants, they are more likely to cause dermatitis than systemic effects. Hexamethylene tetramine was used in but two plants, in quantities approximating 200 pounds a year.

Litharge was used as an accelerator in seven plants, in quantities totalling over 130,000 pounds a year. In the two plants using the largest quantities, tests were made in the compounding room to determine the lead exposure. The results of these determinations are shown in Table XIV. In one plant, the scales on which the materials were weighed were fitted with an exhausted hood; there was no mechanical ventilation in the other. The average exposure in the latter case was fifty times as great as in the former, enough to constitute a serious hazard, despite the fact that the operation was not continuous. Even with the scales ventilated, the lead concentration was higher than would be safe under conditions of constant exposure.

In another operation, involving recovery of metallic lead used in the fabrication of rubber hose, there was a more or less constant exposure to about 3 mg. of lead dust per ten cubic meters of air, about twice the maximum considered safe.

Table XIV. — Air Analyses for Lead Dust in Rubber Goods Manufacture

OPERATION	Source of lead	Number of Samples Taken	Lead Dust (Mg. per 10 Cubic Meters)	Ventilation
Compounding	Lead oxide (litharge)	2	25 to 180	Natural
Compounding	Lead oxide (litharge)	2	3.5 to 5.2	Local exhaust
Hose making	Metallic lead	3	2.4 to 4.0	Local exhaust

Antioxidants were used in some plants. These, like many of the organic accelerators, may be local irritants, but are not likely to cause systemic poisoning.

Vapors and Gases. — The coating of fabric with rubber involves exposure to naphtha vapor, both in the manufacture (churning) of the dope which is spread on the fabric and in the actual spreading process. In none of the plants where tests were made was an average concentration of over 1000 p.p.m.* found, although it was suspected that in colder weather conditions would be less favorable. The results of these tests are shown in Table XV.

Fundamentally similar processes are involved in the manufacture of artificial leather, a side line in some of the rubber plants visited. Here, however, the solvent used may contain a high proportion of benzol and the health hazard is therefore markedly increased. Benzol vapor concentrations above the safe limit of 100 parts per million were found in both coating and dope-mixing processes.

The exposure to sulfur chloride in both vapor- and liquid-curing processes was measured in three plants. Concentrations of from 3 to 4 parts per million were found to be distinctly irritating. The exposures to carbon tetrachloride and naphtha in these processes were negligible. The concentration of ammonia near a neutralizing machine was found to be 10 to 14 p.p.m. Such concentrations are definitely not injurious in themselves, but might possibly aggravate existing respiratory ailments.

*Provisionally the highest allowable concentration.

Table XV. — *Air Analyses for Gases and Vapors in Rubber Goods Manufacture*

OPERATION	Vapor Determined	Number of Samples Taken	Concentration (Parts per million)	Ventilation
Churning .	Naphtha	4	440 to 1050	General
Spreading .	Naphtha	3	670 to 800	Local exhaust
Spreading .	Naphtha	2	580 to 800	General and local exhaust
Dope mixing .	Benzol	1	365	Natural
Coating .	Benzol	1	85	Local exhaust
Coating .	Benzol	4	170 to 250	Local exhaust
Curing .	Sulfur chloride	2	Negligible	Local exhaust
Curing .	Sulfur chloride	2	1.8 to 4.2	Local exhaust
Curing .	Sulfur chloride	4	1.4 to 3.8	General and local exhaust
Curing .	Carbon tetrachloride	1	Negligible	Local exhaust
Curing .	Carbon tetrachloride	1	16	General
Curing .	Carbon tetrachloride	2	10 to 20	General
Curing .	Naphtha and carbon tetrachloride, combined	2	80 to 170	General
Neutralizing	Ammonia	3	10 to 14	Natural

FUR CLEANING

Fifteen establishments, employing a total of forty-six workers in their fur cleaning departments, were visited. Determinations of exposure to solvent vapors were made in eleven.

Fourteen of the firms visited carried compensation insurance and one maintained sick benefit insurance for its employees. One engaged a full-time physician, five had nurses and four employed safety engineers. Only one required pre-employment physical examinations.

The primary purpose of the survey was to determine the exposure to the vapors of the chlorinated solvents used in cleaning furs. Carbon tetrachloride was employed in most cases, but two establishments used trichlorethylene, the chlorinated compound always being mixed with an approximately equal quantity of naphtha or some other petroleum hydrocarbon. The fifteen firms consumed a total of 7,500 gallons of chlorinated compounds and 10,000 gallons of petroleum hydrocarbons per season.

The extent to which the various fur cleaning machines were equipped with mechanical ventilation is shown in Table XVI. Only operations 1 and 2 involve appreciable exposure to solvent vapors, the exhaust systems on the other machines being primarily for the removal of sawdust.

Table XVI. — *Fur Cleaning Establishments Using Mechanical Exhaust*

EQUIPMENT	OPERATION	Mechanical Exhaust	No Mechanical Exhaust
Cleaning Table . . .	1. Saturating lining of fur pieces with cleaning solution	9	6
Rotating Drums . . .	2. Rotation of fur pieces in drum	4	11
Sawdust Shaking Drum .	3. Removal of surface sawdust from fur pieces	6	0
Beating Table . . .	4. Beating of furs	3	0
Blowing Table . . .	5. Removal of trapped sawdust from linings of fur pieces	10	5

Table XVII summarizes the results of 84 air analyses made adjacent to the various fur cleaning operations. All analyses except those inside the rotating drums are indicative of the average exposure of one or more workers for periods of half an hour or more. The data on trichlorethylene have been combined with those on carbon tetrachloride in this table.

It was found that the exposure to carbon tetrachloride during the sponging process (1) varied from less than 5 to nearly 200 parts per million parts of air. The accepted maximum safe concentration for continuous exposure to this vapor is 100 parts per million. As a rule, the exposure was below this value only when the work was done at a hooded and well exhausted table. Some of the exhaust systems provided were apparently no more effective than the natural ventilation existing in other rooms.

In the process of loading drums with furs and their removal from the drums (2), a similar range of exposures was found. If the drums were tight and equipped with a good exhaust, the concentration of carbon tetrachloride vapor was low; otherwise it was usually above 100 parts per million. The other operation tested

(3) did not involve an appreciable exposure to carbon tetrachloride in any case, nor did the general air of the room contain any important quantity of vapor. Naphtha vapor concentrations found were negligible in all cases.

In establishments where fur cleaning was done on a large scale and effective ventilation of drums and cleaning tables was not provided, there was apparently a definite health hazard from inhalation of carbon tetrachloride vapor.

Table XVII. — Air Analyses in Fur Cleaning Establishments

OPERATION	No. of Tests	Concentration Carbon Tetrachloride (Parts per million)			Concentration Total Organic Vapors (Parts per million)		
		Min.	Max.	Avg.	Min.	Max.	Avg.
1. Saturating lining of fur pieces with cleaning solution . . .	21	Less than 5	195	83	10	195	120
2. Rotation of fur pieces in drums and removal of furs therefrom . . .	22	Less than 5	330	78	45	275	150
3. Removal of trapped sawdust from linings of fur pieces . . .	20	Less than 5	50	15	Less than 10	375	95
4. Room conditions (approximate center of room) . . .	17	Less than 5	25	10	Less than 10	145	35
5. Inside rotating drum . . .	4	130	820	475	835	890	875

Summary

In summarizing the activities of the six surveys completed, it may be noted that they have had the whole-hearted co-operation of the industries visited and that no word of criticism or complaint has reached the office with regard to them.

Since it has not been possible to take a census of the industry in conjunction with each survey, the proportion of establishments and workers covered can only be estimated. The figures in Table XVIII are, however, believed to present a reasonably accurate picture. All, except those for the fur cleaning industry, are based upon the 1934 census of the Division of Statistics.

Table XVIII. — Number and Estimated Proportion of Establishments and Employees Included in Survey

INDUSTRY	TOTAL		INCLUDED IN SURVEY			
			ESTABLISHMENTS		EMPLOYEES	
	Establishments	Employees	Number	%	Number	%
Lead storage battery manufacture . . .	4	54	4	100	* 54	100
Paint manufacture . . .	47	661	8	17	389	59
Shoe manufacture . . .	347	45,951	49	14	18,050	39
Wood heel covering . . .	41	1,249	13	32	508	41
Rubber goods manufacture . . .	57	13,711	15	26	8,600	63
Fur cleaning . . .	100	140	15	15	46	35

A total of 301 visits to industrial establishments were made in connection with the surveys. Field determinations of fume or dust concentrations totalled 301 and laboratory determinations 1,079. In addition to the report of conditions found submitted to the management of each factory surveyed, the tabular analysis of health hazards shown in Figure 2 was sent to each establishment in the shoe and rubber goods manufacturing industries.

GRANITE DUST CONTROL PROJECT

The division's Granite Dust Control Project* at Quincy, undertaken to determine the most economical and efficient means of dust control in the small granite cutting shed, was described in some detail in last year's report. Started with the aid of privately contributed funds and with labor furnished by the Emergency Relief Administration, it was subjected to a setback when, in the mass of detail incident to transfer of such undertakings from E.R.A. to W.P.A. auspices in December, 1935, a shutdown of some three months was enforced before approval of renewal

*W.P.A. Project No. 65-14-9253.

In addition to a considerable number of visitors received during the prosecution of the project, including a group of 35 industrial hygiene engineers and physicians from all parts of the country, nearly a hundred granite manufacturers and others responded to an invitation to inspect the equipment at a series of six demonstrations held in October and November. The project received substantial publicity, including notices in trade, insurance, medical, research and governmental journals and newspapers, as well as through two moving picture films, one of which was embodied in a picture "A Better Massachusetts" shown at theatres throughout the state.



DIVISION OF OCCUPATIONAL HYGIENE

23 Joy Street, Boston

ANALYSIS OF HEALTH HAZARDS

DATE Dec. 28, 1935

		A - Hazard to health slight.																												B - Adequate precautions in effect.																												C - Improved ventilation indicated (see notes).																												D - Other precautions recommended (see notes).																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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NOTES

- I-12 100-400 parts of carbon monoxide per million parts of air by Forge #2. (Permissible concentration 100 ppm.) Exhaust duct should be enlarged.
- II-16 3 milligrams of chromic acid per cubic meter of air when plating tank is operating at capacity. (Permissible concentration .5 mg.) Should have stronger blower or work only at lower level.
- II-18 Strict regulations against eating in plating room should be enforced.
- II-29 Nitric acid bath should be enclosed by hood. 50 parts of nitrogen dioxide per million parts of air found. (Permissible concentration 30 ppm.)
- II-43 500-800 parts of trichlorethylene per million parts of air over degreaser. (Permissible concentration 200 ppm.) Should be kept covered when not in actual use.
- III-8, 25, 48 40-70 milligrams of zinc per cubic meter. Exhaust for pouring operation recommended to keep zinc below 20 milligrams per cubic meter.
- IV-17 Cutting oils should be filtered before re-using.
- V-9 Paint remover should be used only under hood. Cartridge respirator should be worn if operation is for prolonged period.
- V-25 Air line respirator should be worn in spraying lead colors. 0.6 milligrams of lead per cubic meter near small booth. 2.0 milligrams by large booth. (.15 mg. permissible.)
- V-40 Men handling tar should be watched for skin troubles.
- V-42 When spraying lacquer in large booth, air line or paint spray respirator should be worn. Toluol concentration of 600 parts per million parts of air found. (Permissible concentration 200 ppm.)

Figure 2. Analysis of Health Hazards

Equipment Installed.—As a separate report of the project is planned, the following summary of the equipment erected and tested under working conditions seems adequate to the purposes of this statement.

Dust Collectors:

Ruemelin cloth tube collector	Loaned by Ruemelin Mfg. Co.
Pangborn cloth screen collector	Loaned by Pangborn Corp.
Dustube (cloth tube) collector	Loaned by Am. Foundry Equipment Co.
Primary collector	Constructed at project
Flat bag collector	Constructed at project
Round tube collector	Constructed at project (parts furnished by Harvard School of Public Health)
Furnace cleaning outfit	Loaned by Spencer Turbine Co.
Rotoclone	Loaned by Am. Air Filter Co.

Banker Exhaust Equipment:

Ruemelin banker exhaust	Loaned by Ruemelin Mfg. Co.
Pangborn banker exhaust	Loaned by Pangborn Corp.
Swing-pipe banker exhaust	Constructed at project (after plans by C. F. Berg Co.)
Tool-attached exhaust	Constructed at project
Suction brush	Constructed at project
Flanges, baffle boards, curtains	Constructed at project

Surfacer Exhaust Equipment:

Swing-pipe surfacer exhaust	Constructed at project
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Other Equipment:

Turntable	Constructed at project
Dust cart	Loaned by Lansing Co.
Dust can	Constructed at project
No. 4 Monogram exhauster	Loaned by B. F. Sturtevant Co.
No. 22CD exhauster	Loaned by Pangborn Corp.
Motor, 1 H.P.	Loaned by Pangborn Corp.
Motor, 5 H.P.	Loaned by General Electric Co.

Other phases of the work included experimentation with calcium chloride as a means of laying floor dust and consideration of methods of inter-shed dust collection and disposal.

Opportunity is here taken to thank the American Mutual Liability Insurance Company, the Employers' Liability Assurance Corporation, Ltd., the Granite Cutters International Association of America, the Liberty Mutual Insurance Company, the Massachusetts Tuberculosis League, the Metropolitan Life Insurance Company, the National Tuberculosis Association, the New Hampshire Tuberculosis Association, the United States Mutual Liability Insurance Company, the Vermont Tuberculosis Association, Mrs. Raymond E. Lee and "an interested citizen" for their generous financial support of the project. Thanks are also due to Mr. Neil A. McDonald and the late Mr. Samuel Squibb for their special services, as well as to a number of organizations and individuals who loaned or donated important equipment and materials to the undertaking.

The project, which can be said to have added a number of useful items to the sum of knowledge in the field of granite dust control, will be dismantled during the coming month.

LABORATORY STUDIES

Special laboratory studies conducted during the year have dealt with (1) the decomposition of carbon tetrachloride vapors, (2) the development of a method for the determination of organic chlorine compound vapors, (3) the properties of synthetic waxes containing chlorine, and (4) the protective efficiency of respirators against cadmium fumes. Brief descriptions of these studies follow.

Decomposition of Carbon Tetrachloride Vapors. — An attempt was made to determine whether or not smoking in the presence of carbon tetrachloride vapors would be likely to involve inhalation of phosgene and other highly poisonous decomposition products of the carbon tetrachloride. The results were negative, but not entirely conclusive. It is planned to repeat this work and to extend it to other organic chlorine compounds.

In this study 16 determinations were made.

Method for Determination of Organic Chlorine Compound Vapors. — As no satisfactory method was available for the determination of organic chlorine compound vapors and dusts, the development of such a method was undertaken in connection with the chlorinated naphthalene investigation already described. A procedure was worked out in which the organic chloride vapor was absorbed in amyl acetate, which was then burned in a sulfur lamp apparatus. The products of combustion were absorbed in a sodium hydroxide solution and the chloride liberated was determined by titration with silver nitrate. It was found necessary to enclose part of the sulfur lamp apparatus in a cabinet and filter the entering air in order to obtain accurate results when low concentrations of chloride were present.

It was predicted on theoretical considerations, and confirmed experimentally, that the usual type of absorbing vessel would not be efficient in the case of the more volatile substances to be determined by this method. Accordingly, a special absorber was designed and constructed which performed satisfactorily.

The method was tested in the fume chamber, under conditions similar to those encountered in the field, for the following substances: carbon tetrachloride, trichlorethylene, chloroform, ethylene dichloride, dichlorethylene, tetrachlorethylene, tetrachlorethane, monochlorobenzene and dichlorobenzene. The determinations were accurate for all of these substances.

This method was used successfully in the field for carbon tetrachloride, trichlorethylene and dichlorobenzene, and a modification of the same method was used for chloronaphthalene fumes, both in the laboratory and in the field.

Further work is being done to determine more exactly the limitations of the method and to investigate the possibility of distinguishing between different chlorine compounds.

The experimental stage of this study involved 276 determinations.

Properties of Synthetic Waxes Containing Chlorine. — In connection with the same investigation, a thorough study was made of the physical and chemical properties of certain synthetic waxes containing chlorine. Methods for identifying and determining the different members of the chloronaphthalene series were worked out.

The density, refractive index and chlorine content were found to be useful properties in identification, but the melting point was not. Fractional crystallization of some of these compounds failed to produce any marked separation of the different constituents. Measurements of the rate of hydrolysis were also made.

This study involved 160 determinations.

Cadmium Fume Respirators. — A fatality early in the year in a non-ferrous metal foundry, caused by the breathing of large quantities of cadmium fumes from an overheated crucible, posed the question of adequate respiratory protection to prevent recurrence of accidents of this nature. The problem will best be understood if the circumstances attending the cited case are briefly described.

Two workmen were melting a quantity (about 200 lbs.) of cadmium metal in a small crucible. Inattention to the melting process resulted in sudden discovery that the temperature had risen far above that intended. The metal was volatilizing at a rapid rate, giving off copious quantities of the characteristic brown fumes of cadmium oxide. Fearing to lose the valuable metal, the men proceeded hastily to pour the crucible contents into the molds. The task completed, they went outdoors, one choking and coughing violently, the other apparently less affected. Within a few days the man who had apparently been less affected died of bronchopneumonia. The other workman recovered.

The increasing use of cadmium metal in bearing alloys, particularly in the automobile industry, might well see repetitions of such accidents if intelligent precautions are not taken. The metal is also used for electroplating purposes and it should in this connection be noted that, aside from accidents, the fumes of cadmium in smaller quantities may cause chronic poisoning and ultimately fatal results.

An inexpensive filter respirator of proper type seems the best answer to the emergency problem above outlined. Inasmuch as the U. S. Bureau of Mines was found to have no definite information bearing on this question, tests of several respirators, to determine their efficiency in removing cadmium fumes, were undertaken with the following procedure.

Between two and three grams of cadmium metal were volatilized in the fume chamber by heating to redness in a glass tube in a stream of oxygen. Resulting concentrations of cadmium oxide in the fume chamber ranged from 30 to 70 milligrams per cubic meter in the several tests. Two samples of air were withdrawn simultaneously, by means of the impinger apparatus, at a rate of one cubic foot (28.3 liters) per minute. The respirator to be tested, sealed to a metal face, was attached to the inlet of the first impinger. Ten cubic feet of air were drawn through each impinger flask for the test. The amount of cadmium thus obtained in each impinger flask was determined quantitatively by a volumetric method involving precipitation as cadmium sulfide. By this means a measure of the relative amount of cadmium passing through the respirator was obtained for comparison with the amount in the fume chamber.

Communication with leading respirator manufacturers brought out the fact that they had little to offer other than their lead dust respirators. Nine respirators were tested in seventeen runs, involving 39 chemical determinations of cadmium. Three lead dust respirators (those approved by the Bureau of Mines for that purpose) were shown to have efficiencies ranging from 93 to 96 per cent against cadmium fumes generated as described. A very dense filter especially constructed by one of the companies for these tests had an efficiency of 98.1 per cent, with a resistance at 85 liters per minute of 2.05 inches.

As a result of these tests and other observations, it is considered important that all plants melting cadmium metal should provide and maintain easily accessible to each man who may be exposed, a respirator of the type approved by the U. S. Bureau of Mines for protection against lead dusts.

The four special studies above described involved a total of 491 laboratory determinations. The three first mentioned were conducted by the chemist, the fourth by the engineer.

OTHER ACTIVITIES

Activities of members of the staff beyond the field and laboratory work already noted have been numerous and in some cases not unimportant. There has been increased call for work of an educational nature, invitations to participate in the deliberations of other organizations have been accepted and a number of public addresses given. Memberships in a state and a national committee have in neither case proved a sinecure.

Educational Co-operation.— Student groups visiting the division's office and laboratory have included 18 members of a class in Industrial Hygiene at the Massachusetts Institute of Technology, 11 students of hygiene from the Graduate School of Education of Boston University, and a party of 35 doctors and engineers from all parts of the country enrolled in a seminar conducted by the United States Public Health Service preparatory to governmental occupational hygiene service in their several states. The administrative, chemical and engineering work of the division was explained to each group and the laboratory and field equipment demonstrated. The Public Health Service students also visited the Granite Dust Control Project at Quincy. Three groups comprising 17 of the department's 32 industrial inspectors were similarly received. An unrecorded number of individual students have called for information and reference material on subjects of occupational hygiene and a substantial amount of printed matter has been distributed to educational institutions for purposes of instruction.

Participation in Related Activities.— At the annual Massachusetts Safety Conference held in Boston on April 23 and 24, the director was chairman of the Session on Industrial Health Problems, at which a paper on the Granite Dust Control Project was read by the supervising engineer. Other meetings attended were sessions on dust control and workmen's compensation at the annual meeting of the American Society of Mechanical Engineers and a conference of the New York State Labor Department on silicosis compensation, both held in New York City, meetings of the Air Hygiene Foundation in New York City and Pittsburgh, a meeting of the Massachusetts Central Health Council, with which the division is affiliated, and a five-day symposium on occupational diseases held at the Harvard School of Public Health as part of the university's tercentenary celebration.

Sessions of the last named gathering appropriate to their interests were attended by the director, chemist and engineer.

Conferences with officers of the United States Department of Labor, the Public Health Service, the Connecticut Bureau of Occupational Diseases and the New York State Division of Industrial Hygiene were held in New York City, Washington and Boston.

Speakers on subjects related to the work of the division were furnished to meetings of the Massachusetts Federation of Women's Clubs, Peabody, the Mattapanock Women's Club, the United Settlement Group and the Engineering Section of the Massachusetts Safety Council, all in Boston, and the Konicide Club, an organization of professional men concerned with the prevention of dust diseases, meeting in New York City.

The division is represented on two committees of the American Public Health Association. The association's Committee on Standard Practices in the Problem of Compensation of Occupational Diseases includes the director; the chemist is a member of the Subcommittee on Chemical Methods in Air Analysis of its Committee on Standard Methods for the Examination of the Air.

National Silicosis Conference. — The importance and complicated nature of the silicosis problem need not here be dwelt upon. Both factors have contributed to a confusion in the public mind inimical to the best interests of all parties concerned, as well as to the formulation and adoption of sane and efficient measures of prevention and compensation.

As a move toward bringing order out of this quite literal chaos, the Secretary of Labor proposed early in the year the organization of a National Silicosis Conference, a body which, bringing together the nation's experience in the several phases of the problem, might authoritatively define it pathologically and socially, determine the best means of medical and engineering control, and reach agreement as to proper governmental and insurance approach to its preventive and compensation aspects. After preliminary meetings in February and March, a general conference was held in Washington on April 14, under the auspices of the department's Division of Labor Standards. The appointment of four committees was announced, each with ten or more members representing medicine, engineering, insurance, law, industry, labor and government. No balance of these interests was attempted. The objectives of the committees are defined by their titles: (1) a Committee on the Prevention of Silicosis through Medical Control, (2) a Committee on the Prevention of Silicosis through Engineering Control, (3) a Committee on the Economic, Legal and Insurance Phases of the Silicosis Problem, and (4) a Committee on the Regulatory and Administrative Phases of the Silicosis Problem.

The sixteen members of the last named committee include nine officials of state governments, two employer and two insurance representatives, as well as an officer of a state labor federation, a medical association and a standards association. The nine governmental members, of whom the director of this division is one, are executives of the health, industrial accidents, insurance, labor and mines departments of their states. Two members are lawyers. Nine states and the District of Columbia are represented.

The activities of this committee have thus far required, in addition to the organization conference in Washington, two meetings in New York and an equal number in Boston. One of its two subcommittees has undertaken to define the regulatory and administrative phases of prevention and to outline a standard preventive program for adoption by state governments; the other has similarly approached the varied phases of compensation. As chairman of the Subcommittee on Prevention, the director has drafted the preventive program referred to and has circularized the Labor and Health Departments of all the states relative to their equipment for preventive engineering service. A report based upon the replies finally secured from all 48 jurisdictions is in preparation. Since the work of the committee and conference has not been completed, a final statement will have to be deferred.

Massachusetts State Health Commission. — The Massachusetts State Health Commission, as to which a preliminary statement appeared in the last report, has

completed its work during the current year. Two changes in the membership of its Committee on Occupational Hygiene, of which the director was chairman, were caused by the resignation of Dr. Francis D. Donoghue and the untimely death of Samuel Squibb on December 23, 1935. Robert J. Watt accepted appointment to Mr. Squibb's place on the committee.

The committee's report, submitted to the commission in November, outlined the Commonwealth's occupational disease problem and evaluated the preventive facilities and activities of its government, municipalities, industrial and mercantile employers, employer associations, labor organizations, insurance companies and associations, hospitals and clinics, educational and research institutions, medical, health, safety and civic associations. The importance of the co-operation of federal and state bureaus, research, industrial, insurance and other agencies beyond its borders was also noted.

The recommendations made by the committee were numerous and in some cases far-reaching. The commission therefore felt it inadvisable to incorporate them in its report, especially since, under the terms of its establishment, drafts of necessary legislation would also have to be included. A solution of this difficulty was found in the recommendation of further study by a commission confined to the problems of occupational hygiene. While the State Health Commission's report has not yet appeared in printed form, it is understood that it will include a bill providing "that a special commission to consist of five members, to be appointed by the governor, shall investigate and study all aspects of occupational diseases." It is greatly to be hoped that such legislation will be enacted.

Publications.—While full reports of the industrial surveys above described have been prepared, as have accounts of several laboratory developments and studies, none had been issued as the year closed, and the division's publications have therefore again been mainly restricted to one and two-page bulletins and reprints. The list is as follows:

1. Annual Report of the Division of Occupational Hygiene for the Year Ending November 30, 1935. 12 pp.
2. "W.P.A. Industrial Chemical Survey Project." 3 pp. Bulletin.
3. "Factory Loss By Dust." 1 p. Reprint from Springfield Republican, December 13, 1935.
4. "Industrial Chemical Survey Project." Announcement published in Industry, January, 1936.
5. "Plant Closed by Mysterious Malady." 1 p. Reprint from Philadelphia Record, January 22, 1936.
6. "The Fifteenth Annual Massachusetts Safety Conference." 1 p. Bulletin.
7. "Industrial Health Leaflets." 1 p. Bulletin.
8. "Dust, Fume and Mist Respirators." 1 p. List of U. S. Bureau of Mines approvals to June, 1936.
9. "Major Items of Technical Equipment." 1 p. List. (Lists 9-16, inclusive, were prepared and issued as part of the program of educational co-operation.)
10. "Correspondents and Reference Sources." 1 p. List.
11. "Important Reference Volumes." 1 p. List.
12. "Important References in the Literature of Occupational Hygiene." 1 p. List.
13. "Periodicals Regularly Received." 1 p. List.
14. "Annual Reports and Bulletins." 1 p. List.
15. "Periodic Reports and Bulletins, Non-annual." 1 p. List.
16. "Meetings, Conferences and Conventions." 1 p. List.
17. "Recommendations of the Massachusetts Special Industrial Disease Commission." 3 pp. Reprint.
18. "The Granite Dust Control Project." 2 pp. Bulletin.
19. "Dust, Fume and Mist Respirators." 1 p. List of U. S. Bureau of Mines approvals to October, 1936.
20. "Provisions of the General Laws Relative to Duties of the Department of Labor and Industries in Industrial Health and Safety." 1 p. Reprint from Chapters 23 and 149, General Laws.

21. "Provisions of the General Laws Relative to the Health of Workers." 2 pp.
Reprint from Chapter 149, General Laws.
22. "Industrial Chemicals and Employee Health." 1 p. Reprint from Industry,
November, 1936.

Legislation. — Massachusetts occupational disease legislation may be said to have "rested on its oars" during 1936. No legislation in which the division took effective interest came before the General Court, though the course of several bills was watched on account of their possible bearing on its activities.

Granite Cutting in Vermont. — Because of the similarity of its problems to those of our own granite centers, particularly Quincy, an inspection trip of several days' duration was made by the engineer in November to the important granite quarrying and cutting area of Barre, Vermont. Nine Barre establishments were visited, as well as one in Concord, New Hampshire.

Local dust exhaust applied to surfacing machines was found to be the invariable rule, while the use of any such device in hand tool operations was the exception. The fact that, in one plant visited, compressed air was not used to blow the dust and chips from the stone being surfaced, is important in proving that this regrettably common practice is not essential to the surfacing operation. Five of the ten establishments maintained filter dust collectors, three in connection with their surfacing machines and two in the hand tool or banker exhaust systems.

Of particular interest was the development of a local exhaust device incorporated in the hand tool, being carried on by an official of one of the Barre companies. While numerous attempts in this direction have failed because of the inability of expert granite cutters to work effectively with a cumbersome exhaust attachment on the tool, the present device seemed highly promising. The success of such a method is greatly to be desired as, though requiring high vacuum to overcome the resistance of a small hose line, it would reduce the volume of exhaust air needed to a fraction of that used in independent hoods.

Forty-two measurements of air movement were made in checking the efficiency of exhaust mechanisms noted on this trip, of which a full report is in preparation.

SUMMARY OF FIELD AND LABORATORY WORK

A summary of the year's field and laboratory activities is offered in the following figures.

	<i>Visits to</i>	<i>Determinations</i>		
	<i>Plants</i>	<i>Field</i>	<i>Laboratory</i>	<i>Total</i>
Routine work	107	117	161	278
Chemical survey	301	301	1,079	1,380
Laboratory studies	—	—	491	491
Vermont granite study	10	—	—	—
	<hr/> 418	<hr/> 418	<hr/> 1,731	<hr/> 2,149

REPORT OF THE MASSACHUSETTS UNEMPLOYMENT COMPENSATION COMMISSION

EMIL E. FUCHS, *Chairman*, ROBERT J. WATT, FRANK G. ALLEN

M. JOSEPH McCARTIN, *Executive Secretary*

INTRODUCTION

The Massachusetts Unemployment Compensation Law, passed by the legislature in 1935, provides for the establishment of a fund through the accumulation of contributions from employers and employees covered by the law, from which benefits will be paid, in accordance with the provisions of the law, after January 1, 1938, to eligible, unemployed persons who become unemployed through no fault of their own.

It is believed that few people now question the purposes and necessity of such a law as an attempt to alleviate the hazard unemployment places on the citizens of the commonwealth, particularly those who are deprived of the opportunity of providing for their own livelihood.

This belief is manifested in the following statement contained in the opinion rendered by the Massachusetts Supreme Judicial Court in the cases of *Howes Brothers Company v. The Unemployment Compensation Commission*; *George H. Ellis v. Unemployment Compensation Commission*, unanimously upholding the constitutionality of the law:—

"The summary of the leading features of the unemployment compensation law already given demonstrates that its design is to afford relief to those who have been employed in the selected kinds of business since the effective date of that law when they are thrown out of work through no fault of their own. Unemployment appears to be inevitable in some branches of trade under present industrial conditions. No plan has yet been demonstrated capable of controlling industry so that the great mass of workers will be steadily engaged. Relief of the physical needs of the unemployed who are without resources of their own is manifestly a duty of government. The unemployment compensation law does not throw the burden of its expense upon funds obtained by general taxation. It puts that burden upon the employers and employees not exempted from its operation. It is not the fault of employers that they cannot at all times keep at work a full quota of employees. The causes of slumps in business, of panics, of periods of great depression in industry, trade and manufacturing are not thoroughly established or convincingly explained. Unemployment may be due in part to other factors than to stagnation in manufacture, commerce, trade or transportation. The harm to the common weal arising from unemployment of large numbers of people is beyond question. Unemployment inflicts want upon many workmen. It offers a fertile field for general discontent. This law affords some defence against that hazard. There has been widespread belief that a public exigency due to unemployment existed. The good and welfare of the commonwealth seemed to demand relief by legislation."

Economic and legal briefs in the cases of *Howes Brothers Company v. The Unemployment Compensation Commission*; *George H. Ellis v. Unemployment Compensation Commission*, were prepared by the legal department of the Commission in collaboration with the Attorney-General. Transcripts of all court proceedings, both state and federal, have been made and are on file.

The first Annual Report of the Massachusetts Unemployment Compensation Commission for the period ending November 30, 1935, covered only a few activities inasmuch as approval of the Massachusetts law, in accordance with section 903 of the Social Security Act, had not been obtained at the close of that period.

The Commission found it necessary to prepare a bill of amendments to the law as originally passed to meet the requirements of section 903 of the Social Security Act, and the attention of the Commission was given to this matter during the early months of the year, which resulted in the passage of a sufficient number of amendments, included in chapter 12 of the acts of 1936, to obtain federal approval on

February 11, 1936. The balance of the amendments suggested by the Commission, which were either of a perfecting nature or for ease of administration, were included in a bill which is now known as chapter 249 of the acts of 1936, and was passed on April 30, 1936.

Section 9N of chapter 479 of the acts of 1935 provides for a State Advisory Council of nine members, three of which shall represent employers, three shall represent employees, and three shall represent the public, the purpose of which is to aid in the formation of policies related to the administration of the Massachusetts Unemployment Compensation Law. In accordance with this provision of the law, an advisory council was appointed by the Governor and approved by the Council on September 22, 1935. During the period covered by this report, there has been no change in the membership of the advisory council, which consists of: —

Representing the Public:

Dr. A. Lawrence Lowell, *Chairman*, for a term of six years.

Miss Amy Hewes, for a term of four years.

Mr. Philip J. Philbin, for a term of two years.

Representing the Employer:

Mr. Edward J. Frost, for a term of six years.

Mr. Frank D. Comerford, for a term of four years.

Mr. Albert N. Murray, for a term of two years.

Representing the Employee:

Mr. John F. Gatelee, for a term of six years.

Mrs. Mary V. Murphy, for a term of four years.

Mr. Archie Gillis, for a term of two years.

During the year 1936, conferences were held by the Commission with the advisory council to discuss various problems.

The Commission and certain members of the staff have attended Interstate Conferences held in Wisconsin, New Hampshire, New York, and the District of Columbia during the period covered by this report. These conferences are sponsored by Unemployment Compensation Administrators, and are attended by representatives of the Bureau of Unemployment Compensation of the Social Security Board, officials of the United States Employment Service and Department of Labor, as well as administrators from states having unemployment compensation laws, for the purpose of discussion and crystallization of ideas pertinent to unemployment compensation.

During the period covered by this report, the Commission has given consideration to: —

- I. Organization and administration.
- II. Determination of status of employers under the Massachusetts Unemployment Compensation Law.
- III. Collection of contributions, record-keeping and accounting procedure.
- IV. Central filing system.

I. ORGANIZATION AND ADMINISTRATION

Preliminary Work. — During the early part of the year the Commission gave its attention to such matters as the registration of employers; the determination of the status of employers under the law; the preparation of a list of employers subject to the law; the drafting of necessary forms and the preparation of rules, regulations, interpretations and instructions.

Personnel. — In compliance with section 9K, of chapter 479, as amended, which is quoted below, the Commission made arrangements with the Director of Personnel and Standardization of the Division of Administration and Finance for the approval of all positions and necessary classifications of new positions. The Commission also arranged with the Civil Service Commission for the holding of examinations, where necessary, and certifications of individuals to fill positions as created.

"SECTION 9K. Subject to appropriation, the commission may appoint and employ all officers, accountants, clerks, secretaries, agents, investigators, auditors and other officers and employees, necessary for the proper administration of chapter one hundred and fifty-one A. All persons so appointed or

employed shall be selected on a non-partisan merit basis, subject to chapter thirty-one and the rules and regulations made thereunder, and also subject to such rules and regulations consistent therewith as may be adopted by the commission. The commission shall not appoint or employ any person who is serving as an officer or committee member of any political party. The commission shall fix the duties and powers of all persons appointed and employed by it, and may authorize any such person to perform any of the functions of a commissioner under this chapter. The commission may, in its discretion, bond any person handling moneys or signing checks hereunder."

Organization as of November 30, 1936. — The organization comprised:

1. The *Commission*, charged with the administration of the law, consisting of three Commissioners, appointed by the Governor.

2. The *Executive Secretary*, appointed by the Commission and approved by the Governor and Council, office assistants and secretarial staff. The executive secretary acted as the operating head for the Commission, while all supervisors, including the chief accountant, counsel, supervisor of analysts, and supervisor of research, received their instructions from the Commission through the executive secretary, whose duty it was to keep the Commission informed regarding the activities of the various departments and to formulate plans for the administration of the law for the approval of the Commission.

3. *Analysis Department* — headed by a supervisor, with analysts, and clerical assistants.

4. *Legal Department* — in charge of a counsel, with assistant attorneys and clerical assistants.

5. *Accounting Department* — in charge of a chief accountant, with senior accountants, and clerical assistants.

6. *Research Department* — in charge of a supervisor, with clerical assistants.

7. *Filing Department* — including the handling of mail, in charge of a head clerk, with clerical assistants.

Administrative Expenses. — The Commission, after submitting a detailed budget of its requirements for each quarter, receives grants of funds from the Federal Social Security Board to cover all necessary administrative expenses. Grants are made to cover the calendar quarters of January 1 to March 31, April 1 to June 30, July 1 to September 30, and October 1 to December 31.

Grants are received from the federal government by check to the Treasurer and Receiver-General of the Commonwealth and credited to the unemployment compensation administration expense account, and payments are made from this account as set forth in the budget approved by the Social Security Board and the procedure established by the laws of this commonwealth and administered by the Division of Administration and Finance.

Appendix "A" covers a statement of administrative expenses for the period February 11 to November 30, 1936. During the period previous to February 11, 1936, the date on which federal funds were first available for administrative expenses, it was necessary to operate on funds appropriated by the Commonwealth of Massachusetts. Appendix "B" covers a statement of administrative expenses for the period prior to February 11, 1936, paid from funds appropriated by the Commonwealth of Massachusetts.

II. DETERMINATION OF STATUS OF EMPLOYERS UNDER THE MASSACHUSETTS UNEMPLOYMENT COMPENSATION LAW

The first important task of the Commission was to obtain a list of all employers doing business in the State of Massachusetts who had eight or more employees in employment subject to the law on some day in each of twenty weeks during the calendar year 1935. To accomplish this, it was necessary to prepare a comprehensive list of all employers in the state.

All available sources were explored, including the Office of the Secretary of State, the Department of Corporations and Taxation, Department of Labor and Industries, the Industrial Accident Board, the Alcoholic Beverage Commission, the office of the Registration of Barbers, the City Clerk's Office at Boston, Chambers of Commerce, Trade Associations, telephone directories, and other agencies.

From these sources, a list of approximately 185,000 employers was compiled. After checking this list for possible duplications, an Initial Statement, Form MUCC-A2, with a letter of instructions regarding the execution and submission of the Initial Statement, and a copy of the Massachusetts Unemployment Compensation Law, as amended up to April 30, 1936, were mailed to approximately 125,000 employers. It was required that the Initial Statement, properly executed, be filed with the Commission on or before June 30, 1936.

The Commission has received, up to November 30, 1936, the period covered by this report, 80,105 returns of Form MUCC-A2.

The difference between the number of Initial Statements mailed to employers, and the number of Initial Statements returned, was due in a considerable measure to the fact that many persons listed as employers were independent persons and had no employees; in the case of chain stores, consolidated reports were filed; and many concerns were known by more than one name.

An analysis department was established and a training program instituted to equip a staff of individuals classified as analysts for the important work which they were to perform. The Initial Statements were analyzed by the analysts and divided into three classes:

1. Employers subject to contributions under the law.
2. Employers employing less than 8 employees and not subject to contributions under the law.
3. Employers in exempt classes not required to make contributions.

To provide employers with a better understanding of the law, the analysis department handled large volumes of correspondence, conferred with individual employers who called at the administrative office of the Commission in large numbers daily, and made field visits in various sections of the state to assist employers in the execution of their Initial Statements.

To further acquaint employers with the law, the Commissioners and members of the staff were called upon from time to time to give radio talks and to address various employer and employee organizations. Newspaper releases were issued periodically.

Conferences were held at the administrative office by the Commissioners and staff members with employers and committees of various organizations to discuss and reach understandings in connection with the many problems pertinent to unemployment compensation which developed in their respective industries.

Assignment of Employer Number. — As rapidly as employers were determined subject to contributions under the law, they were assigned account numbers, which consisted of a 5-digit coded number indicating the employer's alphabetic position in the file. This will allow for the later assignment of a 2-digit number indicating the industrial classification, and a 2-digit number to indicate the geographical location, which will meet the requirements of the Social Security Board that employers' numbers should be kept within 9 digits.

Interpretative Rulings. — In determining the status of employers, it was necessary to prepare rulings and interpretations which involved questions of status of employers and employees within and outside the commonwealth; independent contractors; bankruptcies; receiverships, national banks; savings banks; casual, part-time, and seasonal labor; contracts with municipalities; normal contributions; additional contributions; holding companies; life insurance agents; master and servant relationship; partnerships and limited partnerships; tips and gratuities; trust estates; usual business under the Massachusetts law; trustees appointed by the court; religious, scientific, benevolent, and charitable organizations; services performed on navigable waters; police officers assigned to private organizations; payments made as supper money; cemeteries; investigators; board and lodging; cessation; concessionaires; managing agents; staggered employment; partnership successor of a corporation subject to the law; lawyers connected with a law firm on a salary basis; commission men; newspaper correspondents; solicitors; services performed in connection with instrumentalities of the federal government; services performed in connection with the cultivation and raising of flowers, plants, shrubs, and trees.

In arriving at the determination of these questions, it has been necessary to hold frequent conferences with the Regional Counsel for the Social Security Board,

officials of the Bureau of Internal Revenue, officials of the commonwealth, including the Attorney-General, the Commissioner of Insurance, the Banking Commissioner, the Commissioner of Corporations and Taxation, the Commissioner of Public Welfare, and officials of the City Public Welfare Department. In addition to these conferences, extensive research was made covering these subjects.

Special study and determination was made by the legal department of cases in which exemption was claimed under the law, on the basis that services were performed in the employ of a corporation, community chest, fund, or foundation, organized and operated exclusively for religious, charitable, scientific, literary, and educational purposes. Proper determination of these cases involved a thorough study of the decisions of the Massachusetts Supreme Judicial Court, where exemption from taxation has been claimed under the provisions of the General Laws, chapter 151A. A compilation was made of the leading cases in Massachusetts on this subject which have a definite bearing on the Unemployment Compensation Law, and which, in many instances, involve the identical organizations or entities now claiming exemption from the Unemployment Compensation Law. In all above cases effort was made to conform with the rulings of the Commissioner of Internal Revenue.

III. COLLECTION OF CONTRIBUTIONS, RECORD-KEEPING AND ACCOUNTING PROCEDURE

Equipment. — During the late spring and early summer the Commission gave much of its time to the consideration of equipment for recording and tabulating contribution data. After careful consideration, the Commission decided to engage expert services to assist them in deciding the most efficient equipment for the purpose and engaged the services of the resident partner of a leading concern in the industrial engineering and accounting field, and a professor of accounting in a school of business administration in one of the leading universities in Massachusetts. After a thorough investigation by the Commission, members of the staff, and the experts mentioned above, of the equipment proposed by the various equipment concerns, together with their suggested plans of record-keeping, the Commission finally selected mechanical tabulating equipment for the main job of recording and tabulating contribution data. This equipment was supplemented by validating equipment, and certain other equipment for deposit listing and setting up of pre-determined controls.

The Social Security Board co-operated and made available to the Commission experts from their Bureau of Constructive Accounting, who checked on the equipment selected and assisted members of the staff in designing forms, writing instructions, outlining policies, and preparing flow chart and personnel chart for accounting operations.

Contribution Reports. — About September 1, 1936, subject employers were sent preheaded contribution report blanks covering the first six months of 1936, together with complete instructions for filing. The due date was established for that period as September 15, 1936. In that month over \$3,500,000 was collected from employers, the greater number of whom were very responsive and co-operative with the Commission in complying with the law. Of approximately 13,000 then determined to be subject, several hundred, however, either brought suit to test the constitutionality of the law or intervened in suits either in the Massachusetts Supreme Court or in the federal courts. Many others advised the Commission of their refusal to pay awaiting the outcome of the test of constitutionality. Several hundred requested to be excused from payment on such grounds, while others asked for extensions of time to file for various reasons, including alleged unconstitutionality of the law. Of those who paid, approximately one-half accompanied the payments with a letter of protest.

All of the foregoing required acknowledgment, special procedure for the handling and recording of extensions, protests and notices of litigation.

A desk auditing department was established, whose duty it was to explore all questions raised in correspondence attached to reports, mechanically verify computations, and perform an audit as to the correctness and reasonableness of the information reported so far as this could be done from the face of the returns themselves.

The mechanical tabulating equipment department was organized to record, in punch card form, pay roll, contribution, and other information, listed by batches and by date of journal entries, from which to post to employer's ledger. This department also, by use of the same equipment, preheaded reports, addressed envelopes, and handled the addressing of circular letters and other informational service. Posting has been kept up concurrently with the recording of transactions. A complete check and control was established over the cash transactions and over the unemployment compensation account itself.

Owing to the complexities in the law, many accounting and auditing problems have arisen in connection with bases and methods of computing the contribution. For some employers different rates applied and for others different bases existed upon which to compute contributions. For many others, questions of law, interpretation and status were injected as factors complicating the collection and computation of the proper amount due.

The second period for which contributions were called for was the period July 1 to September 30, inclusive, and the due date of such contributions was established as November 20, 1936.

For the periods subsequent to September, the following contribution periods and dates were prescribed. For October through November, the due date was established as December 20, 1936; for the month of December 1936, the due date was established as January 20, 1937.

Employer and Employee Coverage. — The number of subject employers was estimated as about 14,700. The number of employers declared subject as of November 30, 1936, was 13,105. Of these about 85% paid their contribution by the end of the period. The technical delinquency of the other 15% was partly due to incorrect statements for registration purposes. Other cases were due to a direct challenge to the operation of the law as part of the movement to upset it on alleged grounds of unconstitutionality.

The number paying contributions up to November 30, 1936, was 11,301. These employers reported 812,024 employees. The total number of employees estimated for those declared subject was 940,108.

Statement of Unemployment Compensation Account as of November 30, 1936. — In co-operation with representatives of the Social Security Board and the Treasurer and Receiver-General of the Commonwealth, an account was established in the First National Bank of Boston, known as the Commonwealth of Massachusetts Unemployment Compensation Account, into which all contributions collected are deposited as received and credited to the account. Periodically, the Treasurer and Receiver-General of the Commonwealth, by request of the Commission, transfers such sums as are available for transfer to the Secretary of the Treasury to be credited to the account of Massachusetts in the Unemployment Trust Fund established under section 904 of the Social Security Act.

In accordance with section 11 of chapter 151A, of the acts of 1935, a separate bond was provided for the Treasurer and Receiver-General of the Commonwealth of Massachusetts, as Treasurer and Custodian of the Fund. Other employees of the Commission responsible for the handling of funds were also bonded, in accordance with section 9K of chapter 479.

IV. CENTRAL FILING SYSTEM

In view of the importance of reports and other data submitted by employers and employees, in the establishment of a central filing system, the Commission deemed it advisable to procure fire-protected filing equipment in which to house this material.

In order to maintain a rigid check of all documentary material relating to employers and employees in the central file, comparative studies were made of filing systems with the result that the Commission adopted a triple check automatic index system. This is an alphabetical-numerical system, and triple checked by the use of color schemes, which assures even distribution of material, uniform accuracy of reference and great rapidity of operation.

This system includes a complete charge-out procedure, whereby all incoming mail is recorded and charged to the party to whom it is to be issued and, together with the complete file in the case, is routed by the filing department to the various

departments in the administrative office. All material desired from the files is procured only by the use of a file requisition form.

CONCLUSIONS

Problems remained to be studied and solved, major ones consisting of:

1. The problem of certification for credit against the Federal Title IX Excise Tax of all amounts paid into the Massachusetts Unemployment Compensation Fund.
2. Method for collection of employer and employee contributions for 1937.
3. The setting up of an adequate system of recording employee data.
4. The establishment of a system for registration of unemployed applicants for benefits and disbursement of benefit payments.
5. The establishment of an adequate employment service to function in connection with the payment of benefits.

Progress has been made to November, 1936, in initiating study covering these matters.

Various technicalities and inequalities existing in the law have been discovered, and consideration has been given by the Commission and members of the staff to the following substantive changes in the law: —

1. Simplification of the calculation of benefit payments.
2. Contributions on the first \$2,500 of annual wages, regardless of the total of such annual wages.
3. Exclusion of wages of \$3.00 or less per week.
4. Employees' contribution rate fixed at 1%.
5. Employers of four, or more, and their employees, subject to the law January 1, 1939.
6. Waiting period of two weeks.
7. Elimination of provisions relating to sub-contractors.
8. Elimination of provisions relating to holding companies.
9. Reciprocal arrangements with other states.

Appendix "A"

FEDERAL GRANTS AND EXPENDITURES

February 11–November 30, 1936

Period 1936			
Feb. 11–Mar. 30	\$33,348.27	\$13,463.13	\$19,885.14
Apr. 1–June 30	62,680.01	23,053.10	39,626.91
July 1–Sept. 30	63,485.07	55,658.40	7,826.67
Oct. 1–Nov. 30 (a)	42,936.61 (a)	32,649.69 (b)	10,286.92 (c)
Totals	\$202,449.96	\$124,824.32	\$77,625.64

Detail of Expenditures—Period February 11–November 30, 1936

Salaries	\$70,948.60
Supplies	2,578.56
Telephone	1,266.00
Telegraph	42.95
Messenger service	10.56
Travel	1,413.10
Transportation	153.08
Printing and binding	10,257.97
Heat, light and water	402.70
Rent of premises	4,848.98
Rent of equipment	1,367.32
Repairs and alterations	10.00
Miscellaneous	2,265.77
Furniture	6,265.25
Files	5,589.84
Typewriters	1,999.80
Adding machines	1,050.00
Postage	12,429.09
Furnishings	1,924.75
Total	\$124,824.32

(a) \$42,936.61 is federal grant for period October 1–December 31, 1936.

(b) Actual expenditures for October and November, 1936.

(c) Unexpended balance as of November 30, 1936.

Appendix "B"

STATE APPROPRIATIONS AND EXPENDITURES

December 1, 1935-November 30, 1936

Unexpended balance of 1935 funds	\$ 16.76
Appropriation for fiscal year of 1936	25,350.00
Total	<u>\$25,366.76</u>
Total expenditures — December 1, 1935–November 30, 1936	\$20,158.05
Unexpended balance reverted November 30, 1936	5,208.71
	<u>\$25,366.76</u>

Detail of Expenditures — Period December 1935 – November 1936

Salaries	\$18,761.79
Books, maps, etc.	33.30
Expressage	5.35
Furniture	67.00
Janitor service	1.25
Light	7.28
Other expense	6.85
Postage	177.18
Printing	45.08
Rent	468.75
Stationery and office supplies	174.46
Telephone and telegraph	208.54
Travel	193.22
Typewriter rental	8.00
Total	<u>\$20,158.05</u>

REPORT OF THE DIVISION OF PUBLIC EMPLOYMENT OFFICES

(Affiliated with United States Employment Service)

FRED J. GRAHAM, *Director*

INTRODUCTION

Once each year the Division of Public Employment Offices is called upon to make an accounting of its activities to show how its functions have been carried on and what its accomplishments have been. Since it deals largely with many intangible factors, it is somewhat difficult to portray clearly its multitude of varied activities and the many stages of its work not directly dealing with placement of workers in industry due to the fact that much of its accomplishments do not lend themselves readily to statistical analysis.

The Division of Public Employment Offices, now commonly known as the Massachusetts State Employment Service, has been in active operation since 1906, and was set up to provide a service which would bring together both the worker seeking a position and the employer desiring a worker. Its creation was due largely to the recognition of the fact that the waste of unemployment levies a serious toll upon society at large, as well as upon the individual unemployed worker.

The past several years have shown that the problem of securing work is of vital importance to the maintenance of family, home, property, and living and educational standards. The maintenance of such ties and standards depends in the final analysis upon the worker's ability to secure gainful employment which will allow him to enjoy these benefits. Therefore, the necessity and importance of the organization which has been created and maintained for the primary purpose of bringing about the placement of qualified workers in suitable employment cannot be overestimated. This is the essence of what the Division of Public Employment Offices endeavors to do.

Securing a position has become in modern times a specialized job in itself. Without such a centralized information center as the division provides, workers waste tremendous amounts of time and energy in seeking employment due to their lack of knowledge of the industrial conditions in local communities. Employers likewise encounter difficulties and expense in securing suitable qualified workers because of the dearth of information available to them as to where such workers may be located. This, then, is the function of the division — linking the employer and the unemployed worker.

ORGANIZATION

The Division of Public Employment Offices, during the fiscal year ending November 30, 1936, maintained eight offices, located in Boston, Greenfield, Lowell, Lynn, New Bedford, Pittsfield, Springfield, and Worcester, and in addition, a branch of the Greenfield office in Athol.

On September 13, 1933, the division became affiliated with the United States Employment Service by legislative acceptance of the provisions of the Wagner-Peyser Act of June, 1933, together with the subsequent signing of an agreement of affiliation. Under the terms of this affiliation, the federal government matches the state appropriation for Public Employment Offices on a dollar for dollar basis. This affiliation, which has continued to the present, makes it possible for the division to render more adequate service to residents of the commonwealth by making available additional funds which can be used to expand its functions and increase its efficiency.

The aim of the Wagner-Peyser Act is to provide a nation-wide network of free public employment offices through the co-operation of the states, in order to cope more effectively with the problem of bringing men and women and jobs together without wasted expense, and to provide for a nation-wide labor clearance system for workers in professions, industries, commerce, and agriculture. By means of this affiliation, the division has become part of a co-operating nation-wide network of public employment offices, and in addition is provided by the United States

Employment Service with much valuable information concerning employment-trends, occupational research material and similar specialized industrial information, as well as the latest developments in employment office technique.

DEVELOPMENT AND EXPANSION

With the advent of unemployment insurance, it is expected that the division will play an increasingly prominent part in the business and economic life of the community because of the fact that, in addition to its function as a public employment service, its offices will also be available for the various duties which will be placed upon it in the administration of the Unemployment Compensation Law. In addition, it is felt that the benefits and facilities of the Employment Service should be made available to all parts of the state. Therefore, during the fiscal year ending November 30, 1936, an increased appropriation was granted by the legislature which, when matched by an equal amount of federal money, provided funds sufficient to establish four additional offices, one in each of the cities of Brockton, Fall River, Fitchburg, and Lawrence. It is planned to open these four proposed offices as soon as the necessary personnel can be selected and the administrative arrangements made. It is probable that these offices will be in operation about February 1, 1937. Provision for the staffing of these offices has been made through civil service examinations which were held in June, 1936, for the positions of employment office superintendent, senior employment registrar, and junior employment registrar. Up to the close of the fiscal year, however, the eligible lists for these positions had not been established by the Division of Civil Service.

Within recent years new practices have been developed relative to the housing and location of public employment offices. It has become increasingly evident that the physical locations of the offices are factors to be considered for the reason that attractive quarters which are readily accessible to the industrial or business center of a community assist in developing the proper environmental conditions. If the division is to assume its rightful position as a community service, it must be provided with suitable business quarters.

In recognition of this fact, three of the old established offices of the division which were formerly situated in government buildings were relocated in new quarters in private business buildings during the fiscal year ending November 30, 1936. The Lowell office is now established at an attractive location at 175 Central Street, which is in the center of the business district of the city. The Pittsfield office is now occupying new quarters at 246 North Street, in a very desirable business location. On one of the principal streets of Springfield, at 145 State Street, is situated the new office in that city.

In all of these locations, the latest and most modern ideas in the arrangement and equipment of employment offices were utilized in planning the extensive alterations which preceded the occupation of the premises. Results of these changes have already manifested themselves in the increased business and in the high quality of clientele which is applying at these offices.

STATE ADVISORY COUNCILS

The purpose of the State Advisory Council is, in general, to act as an advisory board in formulating administrative policies, and to assist in maintaining the standards of the division on a high plane. In addition, it serves to integrate the public employment offices with the affairs of the community, and thus lends its assistance in maintaining close touch with current problems.

The membership of the State Advisory Council, which is made up of an equal number of persons representing employers, employees, and the general public, remained practically unchanged during the past year and is as follows:

Representatives of Employers

John S. Lawrence . . .	Boston . . .	Chairman, Mass. Div. N. E. Council
Henry S. Dennison . . .	Frammingham . . .	Pres., Dennison Manufacturing Co.
Alfred W. Donovan . . .	Rockland . . .	Pres., E. T. Wright Shoe Company
Lincoln Filene . . .	Boston . . .	Chairman of Board, William Filene's Sons Company
F. H. Willard . . .	Worcester . . .	Pres., Graton & Knight Company

Representatives of Employees

Robert J. Watt . . .	Boston . . .	Sec.-Treas., Mass. State Branch of A. F. of L.
John F. Gatelee . . .	Boston . . .	Pres., Mass. State Branch of A. F. of L.
Ernest A. Johnson . . .	Boston . . .	Pres., Boston Building Trades Council
Charles F. Sweeney . . .	Fitchburg . . .	Sec.-Treas., Fitchburg Central Labor Union

Representatives of the Public

Mrs. LaRue Brown . . .	Boston . . .	Trustee, Mass. Training School
Roy M. Cushman . . .	Boston . . .	Exec. Sec., Boston Council of Social Agencies
Leo M. Harlow . . .	Boston . . .	Past Dept. Commander, The American Legion — Lawyer
Miss Amy Hewes . . .	South Hadley . . .	Dept. of Economics and Sociology, Mt. Holyoke College
Dr. Stanley King . . .	Amherst . . .	Pres., Amherst College
Mrs. Katherine Shattuck . . .	Worcester . . .	Exec. Sec., Industrial Dept., Y. W. C. A.
Robert O. Small . . .	Boston . . .	Deputy Commissioner, State Dept. of Education
Julian D. Steele . . .	Boston . . .	Director, Robert Gould Shaw House
Judge William M. Welch . . .	Northampton . . .	
Margaret Wiesman . . .	Boston . . .	Sec., Consumers' League of Mass.

Officers

<i>Chairman</i> , John S. Lawrence	<i>Vice-Chairman</i> , Robert J. Watt
<i>Secretary</i> , Fred J. Graham	

The members of the three standing committees are as follows:

Executive Committee

John S. Lawrence, <i>Chairman</i>	Ernest A. Johnson
Robert J. Watt, <i>Vice-Chairman</i>	Miss Amy Hewes
Alfred W. Donovan	Miss Margaret Wiesman
Fred J. Graham, <i>Secretary</i>	

Veterans' Placement Service Committee

Leo M. Harlow, Past Dept. Commander, The American Legion
Daniel J. Doherty, Past Dept. Commander, The American Legion
Walter Howard, Past Dept. Commander, Veterans of Foreign Wars
T. James Gallagher, Past Dept. Commander, Disabled American Veterans
William Quirk, Past Dept. Commander, United Spanish War Veterans

LOCAL ADVISORY COUNCILS

Since the offices of the division deal with all occupational groups and with all types of employers, it is therefore necessary that they be thoroughly familiar with the industrial problems and conditions of the communities in which they operate. To provide this information Local Advisory Councils, whose memberships represent the various community interests, are included in the organization plan of the division. These councils serve a two-fold purpose: first, they interpret the division to their respective communities and thus mold public opinion; and secondly, they provide the employment office staffs with an intimate picture of the local problems which beset their communities. In brief, they serve as connecting links between the offices of the division and their communities at large.

The advantages to be gained from the use of such Local Advisory Councils has for some time been recognized by the division. During the past fiscal year, however, due to the unusual work load which prevailed, it was not feasible to organize such councils in every city in which the division operates offices. Such a council, however, has been in operation in Boston during the past year. The membership of this Local Advisory Council, which is also made up of representatives of employers, employees, and the public, is as follows:

Representatives of Employers

David F. Edwards . .	Boston . .	Pres., Saco-Lowell Shops
Arthur Newhall . . .	Watertown .	Pres., Hood Rubber Company

Representatives of Employees

Ernest Johnson . . .	Boston . .	Pres., Boston Building Trades Council
J. Arthur Moriarty .	Boston . .	Pres., Boston Central Labor Union

Representatives of the Public

Edward Dana . . .	Boston . .	General Mgr., Boston Elevated Ry.
Lincoln Filene . . .	Boston . .	Chairman of Board, Wm. Filene's Sons Co.
Walter K. Neaves . .	Boston . .	Exec. Vice-Pres., Federal Home Loan Bank

*Officers**Chairman, Walter H. Neaves*

At the present time plans are under way for the establishment of such Local Advisory Councils in all of the districts in which our offices are located. It is hoped that these will be in operation by the middle of 1937 so that local offices may have help and advice to assist them in their work.

TYPE OF SERVICE RENDERED

The Division of Public Employment Offices offers a complete service embracing all types of occupations and positions. It maintains in its larger offices, separate departments devoted to the registration and placement of workers with training and experience in clerical, technical or sales pursuits, mechanical or industrial occupations, hotel and factory work, domestic or labor work, as well as junior divisions to assist young men and women. It is an actual fact that employers who call on the division for workers have at their disposal in our offices the largest record of available labor in the state. The division has in its files thousands of men and women with every known kind of training and experience who represent a complete cross-section of unemployed workers of every trade, industry, and profession.

In a single day its offices may register a factory manager, an industrial engineer, a draftsman, a die maker, a tool maker, an accountant, a stenographer, a secretary, a factory laborer, or a young man who is desirous of entering an apprentice training course. Thus, the division offers to employers the facilities of a modern employment service which can supply to them all types of skilled workers.

TYPE OF POSITION FILLED

The broad field of industries and occupations which is covered by the division is perhaps best illustrated by typical examples of the types of positions which have been filled during the past year. These, while by no means complete, will serve to indicate the scope of positions which have been available through the division. For convenience, this list has been broken down into placements among the various divisions into which the offices are divided.

*Men's Placement Activities**Technical, Clerical, Sales and Professional Division:*

Accountants, advertising men, bookkeepers, chemists, clerks, credit investigators, department store workers, designers, draftsmen, engineers, office machine operators, pharmacists, purchasing agents, salesmen and stenographers.

Junior Division:

Apprentices, counter men, factory workers, messengers and office boys.

Industrial Division:

Auto mechanics, auto sprayers, automatic screw machine operators, cabinet makers, dental mechanics, foremen, machine operators, machine shop foremen, machinists, maintenance men, photo engravers, press molders, radio bench workers,

sheet metal workers, shippers, surgical cutlers, surgical instrument makers, textile workers, tinsmiths, tire makers, and tool makers.

Building and Construction Division:

Bricklayers, cable splicers, carpenters, construction workers, electricians, laborers, stationary engineers, stationary firemen, telephone workers, and truck drivers.

Service Division:

Barbers, farm workers, garage workers, gas station attendants, janitors, private chauffeurs, cooks, soda clerks, and watchmen.

Women's Placement Activities

Clerical, Sales and Professional Division:

Artists, bookkeepers, chemists, dental hygienists and assistants, department store workers, dietitians, librarians, nurses, office machine operators, saleswomen, statisticians, stenographers, telephone solicitors, and typists.

Women's Junior Division:

Bookkeepers, counter girls, domestics, mothers' helpers, salesgirls, stenographers, and typists.

Women's Hotel, Domestic, and Industrial Division:

Cooks, general maids, hospital attendants, hostesses, hotel workers, housekeepers, laundry workers, licensed hairdressers, mothers' helpers, and waitresses.

Women's Industrial Division:

Bindery operators, drug packers, dye house workers, elevator operators, factory workers, food packers, leather workers, power machine stitchers, rubber workers, shoe workers, tailoresses, and textile workers.

CLEARANCE

The division also operates a state-wide, as well as a nation-wide, job clearance system. This system makes it possible for an office which is unable to fill an employer's order from among its local registrants to notify other public employment offices within the state, and, if necessary, throughout the nation in order to secure the right person for the job. This clearance system is unique in that it is available only through the public employment offices. Such a clearance system also makes available to unemployed workers in local communities authentic information about work possibilities in other sections of the state or nation, which consequently conserves their time by assisting them to concentrate their efforts in those localities where positions are available.

VETERANS' PLACEMENT SERVICE

Under the terms of the Wagner-Peyser Act which provides for the affiliation of state operated public employment offices with the United States Employment Service, special provision has been made for assistance to qualified veterans. This act provides specifically for a veterans' placement representative in each state who is charged with the duty of supervising the employment interests of veterans registered with the state employment services.

The institution of such a special service constitutes a recognition by the government that veterans as a group have problems peculiar to themselves. Many of them are at a disadvantage due to the fact that the normal building of their careers was interrupted during the war-time period. Their average age is now forty-five years, which is usually a difficult time of life to enter upon a new occupation or job. Placing this group, therefore, requires special insight and exploration into each individual's potentialities for work. In short, a highly personalized placement technique is essential.

It must be realized, however, that workers, whether veterans or not, are referred to employers solely on their qualifications for the particular job available. The veterans' placement representative does not actually register applicants or make placements. Registrations or placements are handled by the regular staff members of the employment offices. The veterans' placement representative, however, assists the offices in finding employment for veterans, and also keeps veterans informed on all matters regarding employment possibilities in the civil service.

In addition, he helps to promote co-operative relationships between veterans' organizations and the Division of Public Employment Offices. Through the Veterans' Placement Service, the administrative office of which is located in Boston, veterans are provided with many services which are not a part of the every-day activities of employment offices, such as assisting in the adjudication of claims through the United States Veterans' Administration; counseling the veterans, especially the disabled veterans who find it necessary to rehabilitate themselves; and assisting widows of veterans to secure employment.

TRAINING PROGRAM

During the past fiscal year, the ground work has been laid for the training of the personnel of the division through the establishment of a staff training program under the direction of an employee who has had previous experience in personnel and educational work. The need for instruction in the fundamentals of personnel and employment office technique has for some time been recognized as a necessary and continuing factor to be utilized in developing and maintaining the personnel at its highest point of efficiency. This program has been aimed toward acquainting the staff with the general policies and basic methods in use by the division. It has resulted from a recognition of the fact that regardless of the individual capabilities of those who compose its personnel, the public employment offices cannot achieve the complete realization of their purpose without a continuous and efficiently conducted training program.

Continuous training in methods, routines, the use of the tools for the job, background and foundation material, and the philosophy of the division is being made one of the major policies of every office. Unity of purpose and improved standards of performance are logical objectives for this new staff training program.

In instituting this training program, the division has applied to its organization the principles which business and industry have for years found to be highly desirable — that is, the creation of a continuous program of training to familiarize all employees with the background and details of their jobs.

The actual operation of this program has been conducted along two general lines — group conferences for the dissemination of general information, and local office meetings for the discussion and solution of problems affecting such local offices. In connection with the operation of this program, a library of literature and material dealing with personnel and employment problems has been organized, training manuals have been prepared and distributed, outside speakers have addressed various staff meetings on personnel problems, and monthly training bulletins and training reviews have been instituted. It is the aim of the division that through these means it may progress to a position in the forefront of the nation's public employment services.

PUBLIC RELATIONS AND FIELD VISITING

The effectiveness of the public employment offices depends largely upon what the employers and the public know of the facilities offered, and what they think of them. Experience has shown the need for publicity in promoting the use and sale of any product or service, for unless it is called to the attention of the potential users, it will remain unknown. It follows, therefore, that the public employment offices, to succeed, must intelligently present their case to the employers and the public if they are to secure their good will.

Much progress has been made during the past year in acquainting employers with the facilities offered by the division. This has been accomplished largely through personal visits to employers as well as through local direct mail advertising and addresses before organized groups of both employers and the public. Due, however, to the heavy registration and placement activities which this division engaged in during the past year in connection with various governmental relief project activities, local offices have been unable to concentrate upon employer visit and public relations activities as much as seemed advisable.

Public relations and field visiting work are to the employment offices what the advertising and sales departments are to private industrial organizations. A recognition of this fact implies that the division might well utilize a well organized and centralized public relations department embracing the services of specialists

experienced in printed publicity media, newspaper work, public platform and radio programs, magazines and trade journal publications, and the organization and administration of field visits to employers. This would allow the planning and co-ordination of public relations and field visiting activities of the division throughout the state, thus providing a unified state-wide presentation of the policies and aims of the division.

Tentative plans have been made for the establishment of an experimental division within the administrative office based on the theory of centralized public relations control in order to determine its effectiveness and possibilities for future development. These plans, which will go into effect early in the fiscal year beginning December 1, 1936, call for an intensified promotional program to acquaint the general public and the private employer with the advantages of the division. This will be divided into two functions — general publicity and field visiting.

Although it has always been a policy of the division to contact private business organizations and explain its services to them, this has been rendered more difficult due to the governmental activities which, as has already been indicated, have made great demands upon the time of the personnel. Through its affiliation with the United States Employment Service, it has been possible for the division to arrange for temporary government financing of a state-wide field visiting program which will be inaugurated shortly after the beginning of 1937. Through this financial aid, the work of the regular personnel will be supplemented by interviewers who will be placed on full time employer contact work.

These men will be given thorough training in field visit work before engaging in their duties. In addition various forms of advertising and publicity such as direct mail pieces to employers, articles in trade magazines, newspaper stories, talks before business groups and associations, radio addresses, and similar media will be utilized. It is hoped to establish mailing lists to employers throughout the state so that they may be supplied with frequent letters and folders which will be prepared dealing with the advantages which the division offers to them.

A new printed leaflet entitled "A Reservoir of Workers" has already been prepared and is about to be issued. This deals with the now so-called Massachusetts State Employment Service and also the National Reemployment Service and will be sent to employers throughout the state. Articles and press releases explaining the functions of the public employment offices will be prepared and issued to newspapers as a part of this program. In addition, frequent releases dealing with activities of the division will be made to all chambers of commerce and trade organizations in order to reach all possible employer groups.

It is hoped that the division may also secure space in the publications of trade and industrial groups. Increased efforts will also be directed toward securing the co-operation of service clubs, trade association groups, civic luncheon clubs, and labor and educational groups. Speakers will be provided to represent this division at gatherings of these organizations. This should prove of much benefit to the division. The preparation of charts, leaflets, and posters are also to be included in the program which is planned.

This experimental public relations program represents a definite attempt to apply sales and advertising principles to the promotion of the use of the division. The division believes that such a program is necessary to impress employers and the general public with the benefits and advantages which it offers. It is only by this means that the division can render in full measure its contribution to the general welfare.

JUNIOR PLACEMENT SERVICE

The experience of the past several years has focused attention upon the problems of unemployed youth. Thousands of young persons between the ages of 16 and 25 have been unable, due to depressed business conditions as well as to their lack of work experience, to obtain positions in industry. Although the depression is undoubtedly responsible for much of this problem, yet it is one which has existed for many years.

Again there arises the problem of young persons unaware of their own capabilities and aptitudes, who are determined to enter positions for which they are obviously unfit or which are so overcrowded that the possibilities for securing a

position are very slight. This group has been especially affected because of the fact that little opportunity has been offered them to acquire work experience since leaving school.

In order to meet this situation, the Division of Public Employment Offices entered into a co-operative agreement with the National Youth Administration for the purpose of establishing special junior divisions for young people between the ages of 16 and 25. At present three of these divisions are in operation in the cities of Boston, Springfield and Worcester. These junior services endeavor to supply certain specialized services to assist such youths. Among these are giving applicants practical information about jobs of various kinds, the nature of their duties and opportunities for advancement, advising young people about educational opportunities in the community, providing them with information regarding specific training which they desire, providing them through the assistance of co-operating social agencies with psychological tests through which their aptitudes may be determined, as well as endeavoring to place qualified young persons in positions in private industry. These divisions have shown remarkable progress since their inception and it is hoped that their facilities may later be made available to other cities.

WORKS PROGRESS ADMINISTRATION

Beginning early in 1935, the division became charged with the duty of registering and determining the proper occupational classifications of all employable members of families receiving public relief, and of all persons who were employed on WPA projects. This task continued during the fiscal year ending November 30, 1936, and entailed much work by the division which does not appear in the statistical records. Literally tens of thousands of Works Progress Administration workers had to be registered and given individual interviews in order to carry out this function. The purpose of this requirement was to have in the files of the division the records of these persons so that those who were qualified for openings in private industry might be referred to such vacancies when they occurred.

It is important to note, however, that all such referrals were naturally subject to the policy of the division that only qualified workers are referred to positions in private industry. From this rule the division has never deviated. The heavy burden thrown upon the division by this task naturally made it difficult for it to maintain as close contact with private industry as it normally does. In spite of this, however, many private employers were contacted and thousands of unemployed workers were returned to private industry.

In the latter part of the fiscal year ending November 30, 1936, the federal government, believing that many WPA workers had acquired new skills which would increase their fitness for work in private industry, instituted a re-interviewing program embracing all persons employed on WPA projects. It therefore became the duty of the division to re-interview these workers. This again resulted in peak load conditions.

Fortunately, organization plans had been set up which enabled it to expand its personnel temporarily in order to take care of this additional burden. Salaries of the extra workers who were temporarily employed were paid by the federal government.

OTHER FEDERAL AGENCIES

In addition to its above explained co-operation with the Works Progress Administration, the division also continued its function of acting as the registration and referral agency for Public Works Administration projects. These projects were largely of a contract nature upon which skilled workers were necessary.

Existing co-operative arrangements with the National Youth Administration in providing facilities for junior counseling and placement work for young people from 16 to 25 years of age were continued. The detailed work of this Junior Placement Service has already been covered in a previous section of this report.

PERPETUAL INVENTORY

It has long been recognized that no true picture of the economic condition of the state or country as a whole can be obtained without an accurate knowledge of the industrial conditions and unemployment figures throughout the country.

Employment conditions of local communities vary from place to place, occupational trends change constantly, and new industries replace the old. Seasonal unemployment and the migration of industries, together with changing technical processes, reflect themselves in unemployment in one occupation and increased employment in another. Intelligent vocational guidance as well as properly planned public works programs to relieve excessive unemployment require a knowledge of the above conditions.

Although periodic surveys have from time to time been made, these have been found inadequate to meet the problem. Therefore, the federal government determined to maintain at all times a current or so-called perpetual inventory of all persons registered with all state employment and national reemployment offices throughout the country. The setting up of this perpetual inventory began in November, 1935, and the work continued into the fiscal year ending November 30, 1936.

A necessary detail of this work was the assignment of identification numbers to every applicant whose registration was in the active file, together with the listing on printed forms of the essential statistical information pertaining to the applicant. This included the exact occupational classification of the applicant, the type of industry in which the applicant was last employed, and also his sex, year of birth, age, color and veteran and relief status. Over 125,000 individuals were so listed by the division during this inventory. This information, when submitted to the United States Employment Service in Washington, makes it possible for the federal government to obtain a composite picture of the unemployment situation throughout the country within a short time, something which has never before been possible.

As a continuation of the perpetual inventory, a survey of the active files in all offices of the division was conducted in July, 1936, in order to eliminate from the central file in Washington the records of those applicants who for one reason or another, other than actual placement, were no longer in the active files of the local offices of this division.

Naturally, the setting up of this perpetual inventory system and the subsequent survey placed great responsibilities upon the operating personnel of the division, but the long range social value of its results amply justify the work involved.

STATISTICAL SUMMARY

In Table 1 are presented principal data covering the activities of the division during the calendar year 1936, together with corresponding data for the calendar year 1935.

Placements. — During the calendar year 1936 the total number of placements made in all offices amounted to 33,723. This was an increase of 5,439 or 19.23 per cent over the number of placements (28,284) made in 1935. The percentage changes in the separate offices were as follows: Boston, 39.06 per cent increase; Greenfield, 4.21 per cent decrease; Lowell, 65.37 per cent decrease; Lynn, 21.41 per cent increase; New Bedford, 112.51 per cent increase; Pittsfield, 4.99 per cent increase; Springfield, 34.46 per cent increase; Worcester, 2.38 per cent increase.

Openings. — The total number of openings received by all offices during the calendar year 1936 was 43,574 which was an increase of 10,871 or 33.24 per cent over the number (32,703) received in 1935. The percentage changes in the separate offices were as follows: Boston, 53.51 per cent increase; Greenfield, 38.18 per cent increase; Lowell, 51.47 per cent decrease; Lynn, 25.56 per cent increase; New Bedford, 110.46 per cent increase; Pittsfield, 54.29 per cent increase; Springfield, 35.07 per cent increase; Worcester, .66 per cent increase.

The 43,574 openings received resulted in 33,723 verified placements. This represented 77.39 per cent of the total number of openings. In 1935 the percentage filled was 86.49 and in 1934 it was 84.5.

Referrals. — There was a total of 49,036 referrals made by all offices during the calendar year 1936, which was 7,036 or 16.75 per cent greater than the number (42,000) made in 1935. The percentage changes in the separate offices were as follows: Boston, 24.62 per cent increase; Greenfield, 7.72 per cent increase; Lowell, 49.49 per cent decrease; Lynn, 2.57 per cent decrease; New Bedford, 86.07 per cent increase; Pittsfield, 23.32 per cent increase; Springfield, 35.59 per cent increase; Worcester, 1.93 per cent decrease.

During the calendar year 1936 the 49,036 referrals made resulted in 33,723 placements, or an average of 1.5 persons sent out for each position filled. This ratio was 1.5 in 1935, and 1.4 in 1934.

Summary by Sex. — In Table 2 are presented principal data by sex for each office separately and for all offices combined for the calendar years 1936 and 1935. In all offices combined 24,759 of the 33,723 placements made were of men. This represents 73.42 per cent of the total. In the Boston office 80.42 per cent of the placements were of men; in Greenfield, 72.35 per cent; in Lowell, 71.82 per cent; in Lynn, 65.78 per cent; in New Bedford, 66.81 per cent; in Pittsfield, 80.39 per cent; in Springfield, 64.81 per cent; in Worcester, 73.69 per cent.

Summary by Months. — The activities of each office separately, and of all offices combined, by months, for the years 1936 and 1935, are summarized by the principal data presented in Table 3. In the division as a whole, during 1935, the greatest number of applications was received in October: February showed the greatest number of openings and referrals, whereas the greatest number of placements was made in March.

Placements of Veterans. — In Table 4 are presented data showing the number of veterans registered and the number of placements of veterans during the years 1936 and 1935. In the division as a whole the number of registrations decreased in 1936 to 2,483 while the number of placements decreased to 2,478.

As shown in Table 4, the number of veterans registered decreased from 5,366 in 1935 to 2,483 in 1936, a decrease of 53.73 per cent. During the same period, placement of veterans dropped from 2,772 to 2,478, a decrease of 10.61 per cent. Of the 33,723 placements made during 1936 in all offices of the division, 2,478 or 7.35 per cent were of veterans, while during the same period the 2,483 veterans registered represented only 3.88 per cent of the 63,917 applicants who registered.

Table 1. — Summary of Business of the Division of Public Employment Offices During the Years 1936 and 1935: By Offices

OFFICES	1936				1935			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
Boston	29,627	15,833	16,619	11,493	40,329	10,314	13,336	8,265
Greenfield* . .	2,123	4,759	4,061	3,074	4,737	3,444	3,770	3,209
Lowell	5,065	1,324	1,724	873	8,543	2,728	3,413	2,521
Lynn	4,910	3,336	4,431	2,694	8,686	2,657	4,548	2,219
New Bedford . .	4,040	3,601	6,507	3,483	11,380	1,711	3,497	1,639
Pittsfield . . .	2,032	3,581	3,871	2,315	3,454	2,321	3,139	2,205
Springfield . .	8,340	6,081	6,233	5,740	14,627	4,502	4,597	4,269
Worcester . . .	7,780	5,059	5,590	4,051	16,085	5,026	5,700	3,957
Totals	63,917	43,574	49,036	33,723	107,841	32,703	42,000	28,284

*(Including Athol Branch.)

Table 2. — Summary of Business of the Division of Public Employment Offices During the Years 1936 and 1935: By Offices and Sex

OFFICE AND CLASSIFICATION	1936				1935			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
All offices combined:								
Men	40,572	32,242	36,145	24,759	73,878	23,478	29,356	20,722
Women	23,345	11,332	12,891	8,964	33,963	9,225	12,644	7,562
Totals	63,917	43,574	49,036	33,723	107,841	32,703	42,000	28,284
Boston:								
Men	19,813	12,958	13,841	9,243	28,464	7,772	10,409	6,157
Women	9,814	2,875	2,778	2,250	11,865	2,542	2,927	2,108
Totals	29,627	15,833	16,619	11,493	40,329	10,314	13,336	8,265
Greenfield*:								
Men	1,243	3,711	2,851	2,224	3,388	2,823	2,680	2,643
Women	880	1,048	1,210	850	1,349	621	1,090	566
Totals	2,123	4,759	4,061	3,074	4,737	3,444	3,770	3,209
Lowell:								
Men	3,005	860	971	627	5,088	2,490	2,911	2,329
Women	2,060	464	753	246	3,455	238	502	192
Totals	5,065	1,324	1,724	873	8,543	2,728	3,413	2,521
Lynn:								
Men	2,877	1,992	2,738	1,772	5,966	1,464	2,233	1,388
Women	2,033	1,344	1,693	922	2,720	1,193	2,315	831
Totals	4,910	3,336	4,431	2,694	8,686	2,657	4,548	2,219
New Bedford:								
Men	2,512	2,399	4,562	2,327	7,158	1,128	2,319	1,089
Women	1,528	1,202	1,945	1,156	4,222	583	1,178	550
Totals	4,040	3,601	6,507	3,483	11,380	1,711	3,497	1,639
Pittsfield:								
Men	1,445	2,666	3,072	1,861	2,039	1,727	2,215	1,726
Women	587	915	799	454	1,415	594	924	479
Totals	2,032	3,581	3,871	2,315	3,454	2,321	3,139	2,205
Springfield:								
Men	4,789	3,952	4,071	3,720	11,042	2,763	2,673	2,548
Women	3,551	2,129	2,162	2,020	3,585	1,739	1,924	1,721
Totals	8,340	6,081	6,233	5,740	14,627	4,502	4,597	4,269
Worcester:								
Men	4,888	3,704	4,039	2,985	10,733	3,311	3,916	2,842
Women	2,892	1,355	1,551	1,066	5,352	1,715	1,784	1,115
Totals	7,780	5,059	5,590	4,051	16,085	5,026	5,700	3,957

*(Including Athol Branch.)

Table 3. — Summary of Business of the Division of Public Employment Offices During the Years 1936 and 1935: By Offices and Months

OFFICE AND MONTH	1936				1935			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
ALL OFFICES COMBINED								
January	6,220	2,994	3,258	2,094	3,783	1,748	2,175	1,409
February	4,942	6,057	6,358	2,213	4,148	1,325	1,798	1,002
March	6,388	4,566	4,967	4,737	5,272	2,319	3,184	1,621
April	4,493	5,306	6,064	4,067	4,827	3,185	4,378	2,674
May	3,881	4,676	4,961	3,851	4,478	3,158	4,241	2,810
June	5,202	3,869	4,201	3,178	5,955	2,643	3,485	2,363
July	4,552	2,936	3,609	2,868	6,667	2,848	3,392	2,514
August	2,843	3,071	3,379	2,252	9,804	2,534	3,341	2,491
September	5,441	2,867	3,450	2,523	11,311	2,875	3,670	2,591
October	8,087	2,907	3,383	2,205	17,268	3,594	4,759	2,641
November	5,849	2,348	2,890	1,960	18,210	3,909	4,963	3,558
December	6,019	1,977	2,516	1,775	16,118	2,565	2,614	2,610
Totals	63,917	43,574	49,036	33,723	107,841	32,703	42,000	28,284
Boston:								
January	2,832	777	831	551	1,901	424	578	266
February	2,457	3,603	3,429	666	2,272	426	515	279
March	3,147	2,584	2,410	2,645	2,476	690	849	433
April	1,795	2,290	2,287	2,039	2,079	860	1,214	587
May	1,342	1,386	1,481	1,035	2,240	915	1,245	859
June	1,907	1,170	1,275	936	2,487	618	985	533
July	1,884	649	782	726	2,977	674	922	593
August	1,228	818	802	612	4,392	529	766	477
September	2,264	736	1,010	722	4,417	758	1,093	668
October	4,641	806	1,035	740	3,697	1,658	2,083	928
November	2,995	611	831	533	5,406	1,995	2,214	1,677
December	3,135	403	446	288	5,985	767	872	965
Totals	29,627	15,833	16,619	11,493	40,329	10,314	13,336	8,265
Greenfield*:								
January	161	191	124	140	267	124	190	106
February	149	146	118	197	356	112	170	94
March	164	408	351	277	204	230	257	142
April	165	579	646	316	202	251	360	262
May	197	916	481	498	244	245	305	214
June	270	534	339	247	467	305	329	257
July	229	463	483	305	433	467	408	418
August	175	537	462	330	449	376	423	426
September	165	369	337	278	416	321	290	273
October	194	232	276	171	792	265	331	260
November	118	188	197	132	747	408	423	372
December	136	196	247	183	160	340	284	385
Totals	2,123	4,759	4,061	3,074	4,737	3,444	3,770	3,209
Lowell:								
January	627	101	86	34	249	268	253	268
February	315	182	166	79	342	135	206	108
March	498	99	202	152	459	214	323	213
April	298	111	120	83	282	313	444	307
May	259	134	150	83	308	267	415	264
June	298	117	138	51	293	240	375	233
July	274	92	155	79	454	267	296	239
August	189	119	123	77	447	240	286	217
September	488	122	115	36	403	121	187	118
October	636	100	124	74	1,636	199	293	176
November	486	57	96	26	2,494	184	142	152
December	697	90	249	99	2,176	280	193	226
Totals	5,065	1,324	1,724	873	8,543	2,728	3,413	2,521
Lynn:								
January	275	338	260	126	460	205	345	160
February	296	280	670	246	374	160	292	116
March	385	182	286	264	501	202	450	153
April	436	203	274	188	367	296	504	243
May	518	292	302	296	430	342	593	273
June	587	180	265	203	517	297	494	246
July	499	210	279	166	525	256	363	217
August	276	361	423	198	1,130	209	345	174
September	588	423	495	411	577	219	382	189
October	445	399	464	151	1,252	222	358	200
November	325	298	404	221	1,074	153	229	170
December	280	170	309	224	1,479	96	193	78
Totals	4,910	3,336	4,431	2,694	8,686	2,657	4,548	2,219

*(Including Athol Branch.)

Table 3. — Summary of Business of the Division of Public Employment Offices During the Years 1936 and 1935: By Offices and Months — Concluded

OFFICE AND MONTH	1936				1935			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
New Bedford:								
January	486	248	497	235	211	100	120	80
February	429	254	578	241	192	73	110	57
March	460	374	663	361	323	223	336	143
April	341	330	624	314	306	177	324	160
May	297	434	911	414	395	146	317	153
June	444	319	576	310	983	115	205	113
July	400	219	567	254	995	104	232	99
August	183	293	525	284	1,061	165	286	166
September	216	213	389	198	1,200	142	343	143
October	250	252	361	242	2,792	202	489	206
November	358	260	345	251	2,140	145	508	211
December	176	405	471	379	782	119	227	108
Totals	4,040	3,601	6,507	3,483	11,380	1,711	3,497	1,639
Pittsfield:								
January	225	187	261	146	78	64	93	52
February	220	968	664	240	59	50	60	40
March	257	178	248	348	528	156	190	86
April	200	107	363	149	374	275	332	250
May	122	357	282	233	112	284	314	173
June	218	343	486	248	153	213	184	195
July	137	275	350	245	127	176	238	203
August	111	353	409	246	570	187	291	240
September	150	331	331	181	303	231	316	236
October	152	213	232	153	648	272	397	214
November	163	180	150	62	377	167	581	272
December	77	89	95	64	125	246	143	244
Totals	2,032	3,581	3,871	2,315	3,454	2,321	3,139	2,205
Springfield:								
January	1,010	589	596	499	313	197	221	204
February	765	413	470	335	261	143	172	127
March	992	473	477	450	297	217	284	197
April	868	1,163	1,244	647	759	391	472	359
May	599	738	775	880	328	326	354	356
June	576	728	661	758	517	393	392	392
July	481	634	572	784	518	420	465	370
August	302	179	185	169	834	560	588	574
September	602	312	334	336	2,773	588	479	574
October	801	351	335	314	4,309	356	360	327
November	682	272	315	297	2,406	468	428	380
December	662	229	269	251	1,312	443	382	409
Totals	8,340	6,081	6,233	5,740	14,627	4,502	4,597	4,269
Worcester:								
January	604	563	603	363	304	366	375	273
February	311	211	263	189	292	226	273	181
March	485	268	330	240	484	387	495	254
April	390	523	506	331	458	622	728	506
May	547	419	579	412	421	633	698	518
June	902	478	461	425	538	462	521	394
July	648	394	421	309	638	484	468	375
August	379	411	450	336	921	268	356	217
September	968	361	439	361	1,222	495	580	390
October	968	554	556	360	3,142	420	448	330
November	722	482	552	438	3,566	389	438	324
December	856	395	430	287	4,099	274	320	195
Totals	7,780	5,059	5,590	4,051	16,085	5,026	5,700	3,957

Table 4. — Number of Veterans Registered and Number of Veterans Placed by the Division of Public Employment Offices During the Years 1936 and 1935: By Offices

OFFICES	1936		1935	
	Registra- tions	Place- ments	Registra- tions	Place- ments
Boston	1,238	799	2,246	907
Greenfield*	67	150	225	250
Lowell	176	42	283	366
Lynn	165	152	502	225
New Bedford	127	246	358	245
Pittsfield	73	222	104	152
Springfield	318	507	985	158
Worcester	319	360	663	469
Totals	2,483	2,478	5,366	2,772

*(Including Athol Branch.)

Table A. — Number of Placements Made by the Division of Public Employment Offices: By Years, 1907-1936

YEAR	Boston ¹ Trades and Labor Office	Boston ⁵ Clerical and Technical Office	Boston Total	Fall River ³	Green- field ¹¹	Lowell ¹²	Lynn ¹³	New Bedford ¹⁴	Pitts- field ¹⁵	Spring- field ²	Worce- ster ⁴	Total All Offices
<i>Fiscal year ending November 30</i>												
1907	14,480 ¹	—	14,480	234 ³	—	—	—	—	—	798 ²	—	15,510 ⁶
1908	9,941	—	9,941	2,583	—	—	—	—	—	2,431	—	14,955
1909	13,034	—	13,034	1,541	—	—	—	—	—	3,166	—	17,741
1910	15,478	—	15,478	1,421	—	—	—	—	—	3,675	—	20,574
1911	15,806	—	15,806	1,042	—	—	—	—	—	4,310	—	21,158
1912	19,554	—	19,554	1,641	—	—	—	—	—	5,302	—	26,587
1913	20,971	—	20,971	1,260	—	—	—	—	—	5,224	—	26,587
1914	15,724	—	15,724	1,125	—	—	—	—	—	4,985	—	23,777
1915	14,491	—	14,491	1,125	—	—	—	—	—	6,106	—	24,710 ⁸
1916	18,747 ⁹	—	18,747 ⁹	1,348	—	—	—	—	—	10,399	—	26,689
13 months ending December 31, 1917	18,747 ⁹	—	18,747 ⁹	383 ⁹	—	—	—	—	—	12,344 ⁹	—	39,865
<i>Calendar year</i>												
1918	18,125	—	18,125	—	—	—	—	—	—	12,570	—	39,735
1919	16,885	—	16,885	—	—	—	—	—	—	12,287	—	37,615
1920	16,910	—	16,910	—	—	—	—	—	—	12,044	—	37,920
1921	11,734	—	11,734	—	—	—	—	—	—	9,689	—	37,133
1922	13,244	1,408 ⁵	14,652	—	—	—	—	—	—	13,968	—	28,536
1923	14,882	1,782	16,664	—	—	—	—	—	—	13,677	—	38,469
1924	13,037	1,529	14,566	—	—	—	—	—	—	13,716	—	40,044
1925	14,200	1,538	15,738	—	—	—	—	—	—	10,306	—	32,188
1926	14,933	1,494	16,427	—	—	—	—	—	—	11,068	—	34,806
1927	13,721	1,103	14,824	—	—	—	—	—	—	10,252	—	34,294
1928	13,052	1,656	14,708	—	—	—	—	—	—	8,168	—	28,858
1929	13,568	1,238	14,796	—	—	—	—	—	—	8,185	—	28,324
1930	8,760	798	9,558	—	—	—	—	—	—	9,071	—	30,157
1931	6,149	763	6,912	—	—	—	—	—	—	5,753	—	19,430
1932	4,373	638	5,011	—	—	—	—	—	—	4,092	—	14,055
1933	—	— ¹⁰	16,440	—	—	—	—	—	—	3,604	—	2,167
1934	—	—	8,433	—	—	—	—	—	—	6,189	—	5,919
1935	—	—	8,265	—	347 ¹¹	2,292 ¹²	1,435 ¹³	1,074 ¹⁴	1,104 ¹⁵	5,615	—	4,608
1936	—	—	11,493	—	3,209	2,521	2,219	1,639	2,205	4,269	—	28,284
					3,074	873	2,694	3,483	2,315	5,740	—	33,723

¹ Boston (main office) opened December 3, 1906.² Springfield office opened September 4, 1907.³ Fall River office opened October 1, 1907; discontinued March 31, 1917.⁴ Worcester office opened September 15, 1913.⁵ Boston (clerical and technical office) opened January 9, 1922.⁶ Twelve months for the Boston office, three months for the Springfield office, and two months for the Fall River office.⁷ Eleven months for the Worcester office (closed during August) and two and one-half months for the Fall River office (closed during August).⁸ Eleven months for the Fall River office (closed during August).⁹ Thirteen months for all offices except the Fall River office which was open for four months only, having been discontinued March 31, 1917.¹⁰ Thirteen months for the Greenfield office, nine months for the Lynn office, and twelve months for all other offices.¹¹ Statistics for all divisions of the Boston office merged upon moving to the new Public Works Building.¹² Greenfield office opened October 1, 1934.¹³ Lowell office opened January 2, 1934.¹⁴ Lynn office opened March 19, 1934, but statistics merged as of April 1, 1934.¹⁵ New Bedford office opened April 17, 1934, but statistics merged as of April 1, 1934.¹⁶ Pittsfield office opened February 19, 1934, but statistics merged as of April 1, 1934.¹⁷ Three months for the Greenfield office, nine months for the Lynn office, nine months for the New Bedford office, nine months for the Pittsfield office, and twelve months for all other offices.

Table B. — Number of Placements Made by the Division of Public Employment Offices: By Months, 1929 Through 1936

MONTH	1929	1930	1931	1932	1933	1934	1935	1936
All Offices Combined								
January	2,095	1,511	1,083	679	762	1,568	1,409	2,094
February	1,620	1,210	978	815	683	1,405	1,002	2,213
March	2,091	1,580	1,261	895	639	1,540	1,621	4,737
April	2,671	2,224	1,482	1,019	904	1,821	2,674	4,067
May	3,237	2,254	1,453	977	1,359	3,954	2,810	3,851
June	2,969	1,850	1,279	911	1,361	2,133	2,363	3,178
July	2,780	1,526	1,082	566	765	2,061	2,514	2,868
August	2,593	1,354	1,032	721	1,002	2,009	2,491	2,252
September	3,239	1,859	1,303	971	1,296	1,620	2,591	2,523
October	3,256	1,573	1,232	1,003	1,572	2,401	2,641	2,205
November	2,031	1,250	888	1,108	2,286	2,291	3,558	1,960
December	1,575	1,239	982	1,117	15,919	2,105	2,610	1,775
Totals	30,157	19,430	14,055	10,782	28,548	24,908	28,284	33,723
Boston								
January	1,038	773	508	317	388	349	266	551
February	795	578	453	331	316	398	279	666
March	1,065	788	634	439	258	330	433	2,645
April	1,247	1,088	700	451	357	902	587	2,039
May	1,452	1,065	757	429	614	2,743	859	1,035
June	1,311	893	622	372	533	317	533	936
July	1,381	679	494	219	302	315	593	726
August	1,333	669	531	270	406	407	477	612
September	1,674	1,015	735	522	491	498	668	722
October	1,640	792	614	505	602	841	928	740
November	1,064	594	401	584	1,144	866	1,677	533
December	796	624	463	572	11,029	467	965	288
Totals	14,796	9,558	6,912	5,011	16,440	8,433	8,265	11,493

MONTH	1934	1935	1936	1934	1935	1936	1934	1935	1936
Greenfield			Lowell			Lynn			
January	—	106	140	58	268	34	—	160	126
February	—	94	197	86	108	79	—	116	246
March	—	142	277	72	213	152	—	153	264
April	—	262	316	43	307	83	72	243	188
May	—	214	498	82	264	83	89	273	296
June	—	257	247	474	233	51	145	246	203
July	—	418	305	400	239	79	228	217	166
August	—	426	330	191	217	77	91	174	198
September	—	273	278	131	118	36	71	189	411
October	122	260	171	256	176	74	164	200	151
November	101	372	132	188	152	26	114	170	221
December	124	385	183	311	226	99	461	78	224
Totals	347	3,209	3,074	2,292	2,521	873	1,435	2,219	2,694

MONTH	1934	1935	1936	1934	1935	1936
New Bedford			Pittsfield			
January	—	80	235	—	52	146
February	—	57	241	—	40	240
March	—	143	361	—	86	348
April	35	160	314	34	250	149
May	13	153	414	89	173	233
June	37	113	310	147	195	248
July	224	99	254	159	203	245
August	282	166	284	193	240	246
September	46	143	198	194	236	181
October	96	206	242	136	214	153
November	254	211	251	89	272	62
December	87	108	379	63	244	64
Totals	1,074	1,639	3,483	1,104	2,205	2,315

Table B. — Number of Placements Made by the Division of Public Employment Offices: By Months, 1929 Through 1936 — Concluded

MONTH	1929	1930	1931	1932	1933	1934	1935	1936
<i>Springfield</i>								
January	653	398	311	236	207	650	204	499
February	490	324	303	338	174	451	127	355
March	611	445	361	306	171	413	197	450
April	894	684	431	366	313	328	359	647
May	1,100	738	396	335	422	615	356	880
June	1,036	586	365	343	497	582	392	758
July	874	509	305	176	212	512	370	784
August	723	361	272	253	346	449	574	169
September	943	544	328	270	490	414	574	336
October	857	463	383	261	675	522	327	314
November	490	355	310	352	484	296	380	297
December	400	346	327	368	2,179	383	409	251
Totals	9,071	5,753	4,092	3,604	6,170	5,615	4,269	5,740
<i>Worcester</i>								
January	404	340	264	126	167	511	273	363
February	335	308	222	146	193	470	181	189
March	415	347	266	150	210	725	254	240
April	530	452	351	202	234	407	506	331
May	685	451	300	213	323	323	518	412
June	622	371	292	196	331	431	394	425
July	525	338	283	171	251	223	375	309
August	537	324	229	198	250	396	217	336
September	622	300	240	179	315	266	390	361
October	759	318	235	237	295	264	330	360
November	477	301	177	172	658	383	324	438
December	379	269	192	177	2,711	209	195	287
Totals	6,296	4,119	3,051	2,167	5,938	4,608	3,957	4,051

Table C. — Number of Openings and Placements Recorded by the Division of Public Employment Offices: By Months, 1925 Through 1936

MONTH	1925		1926		1927		1928	
	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments
January	2,816	2,443	2,787	2,451	2,092	1,914	1,809	1,578
February	2,223	1,898	3,133	2,762	1,813	1,552	1,852	1,605
March	3,157	2,601	3,630	3,020	2,571	2,225	2,554	2,105
April	4,161	3,430	3,605	2,963	3,090	2,646	2,702	2,262
May	3,901	3,335	3,868	3,366	2,993	2,522	3,532	2,943
June	3,995	3,263	3,332	2,901	3,251	2,833	3,106	2,624
July	3,364	2,745	2,972	2,541	2,628	2,299	2,895	2,446
August	3,238	2,590	3,261	2,691	3,094	2,615	3,232	2,586
September	4,144	3,510	3,810	3,175	3,676	3,089	3,536	2,947
October	4,159	3,598	3,823	3,395	3,368	2,974	3,726	3,279
November	3,156	2,809	3,026	2,630	2,613	2,366	2,409	2,064
December	2,879	2,584	2,692	2,399	2,009	1,823	2,174	1,885
Totals	41,193	34,806	39,939	34,294	33,198	28,858	33,527	28,324

MONTH	1929		1930		1931		1932	
	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments
January	2,482	2,095	1,737	1,511	1,245	1,083	838	679
February	2,052	1,620	1,439	1,210	1,214	978	1,040	815
March	2,561	2,091	1,908	1,580	1,574	1,261	1,095	895
April	3,404	2,671	2,657	2,224	1,795	1,482	1,172	1,019
May	3,928	3,237	2,787	2,254	1,741	1,453	1,212	977
June	3,772	2,969	2,248	1,850	1,495	1,279	1,065	911
July	3,315	2,780	1,775	1,526	1,260	1,082	692	566
August	3,137	2,593	1,627	1,354	1,286	1,032	936	721
September	4,042	3,239	2,265	1,859	1,625	1,303	1,180	971
October	3,871	3,256	1,882	1,573	1,444	1,232	1,210	1,003
November	2,348	2,031	1,425	1,250	1,098	888	1,569	1,108
December	1,783	1,575	1,478	1,239	1,138	982	1,248	1,117
Totals	36,695	30,157	23,228	19,430	16,915	14,055	13,257	10,782

Table C.—Number of Openings and Placements Recorded by the Division of Public Employment Offices: By Months, 1925 Through 1936—Concluded

MONTH	1933		1934		1935		1936	
	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments
January	981	762	3,683	1,568	1,748	1,409	2,994	2,094
February	798	683	1,706	1,405	1,325	1,002	6,057	2,213
March	859	639	2,015	1,540	2,319	1,621	4,566	4,737
April	1,050	904	1,986	1,821	3,185	2,674	5,306	4,067
May	1,671	1,359	2,224	3,954	3,158	2,810	4,676	3,851
June	1,632	1,361	2,647	2,133	2,643	2,363	3,869	3,178
July	987	765	2,585	2,061	2,848	2,514	2,936	2,868
August	1,274	1,002	2,543	2,009	2,534	2,491	3,071	2,252
September	1,576	1,296	2,101	1,620	2,875	2,591	2,867	2,523
October	1,848	1,572	3,145	2,401	3,594	2,641	2,907	2,205
November	2,753	2,286	2,604	2,291	3,909	3,558	2,348	1,960
December	16,237	15,919	2,240	2,105	2,565	2,610	1,977	1,775
Totals	31,666	28,548	29,479	24,908	32,703	28,284	43,574	32,733

